



**LONG-TERM GROUNDWATER MONITORING REPORT
FOURTEENTH ROUND (March 2012)**

**BLACKWELL LANDFILL SITE
DUPAGE COUNTY, ILLINOIS**

MWH File No.: 1007333

Prepared For:

**Forest Preserve District
DuPage County, Illinois**

Andy S
Prepared By:



BUILDING A BETTER WORLD

**MWH Americas, Inc.
175 West Jackson Boulevard, Suite 1900
Chicago, Illinois 60604**

June 2012

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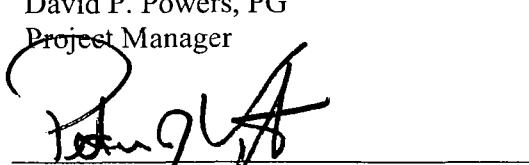
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ACRONYMS AND ABBREVIATIONS

cis-1,2-DCE	cis-1,2-dichloroethene
District	Forest Preserve District of DuPage County
FS	Feasibility Study
IEPA	Illinois Environmental Protection Agency
LTGMP	Long-Term Groundwater Monitoring Program
MCLs	Maximum Contaminant Levels
MWH	MWH Americas, Inc.
NPL	National Priority List
PCE	tetrachloroethene (perchloroethylene)
QAPP	Quality Assurance Project Plan
Regulatory Standards	U.S. EPA MCLs and IEPA Class I Groundwater Standards
RI	Remedial Investigation
Site	Blackwell Landfill NPL Site
TCE	trichloroethene
µg/L	micrograms per liter
U.S. EPA	United States Environmental Protection Agency
VOCs	volatile organic compounds

1.0 INTRODUCTION

A total of 25 groundwater monitoring events have been conducted at the Blackwell Landfill National Priorities List (NPL) Site (Site). The Site is located within the Blackwell Forest Preserve in Warrenville, DuPage County, Illinois (Figure 1). General site features are shown in Figure 2.

This report documents the results of the 14th round of groundwater monitoring conducted under the Long-Term Groundwater Monitoring Program (LTGMP) for the Site. The LTGMP began in March 2001. Prior to the LTGMP, 11 monitoring events were conducted as part of the Remedial Investigation (RI), Feasibility Study (FS), and Quarterly Groundwater Monitoring Program.

Based upon available information, the Forest Preserve District of DuPage County (District) believes the Blackwell Site is a candidate for removal from the NPL. To this end, the District initiated discussions with United States Environmental Protection Agency (U.S. EPA) on the procedures and standards for removal and what additional information and/or reports may be necessary. The U.S. EPA requested that the District conduct groundwater sampling for three consecutive quarters.

Under the LTGMP, monitoring wells are sampled on an annual basis. To comply with the U.S. EPA request, the District is proposing that two additional rounds of groundwater monitoring be conducted during the second and third quarters of 2012. Groundwater samples will be collected at the two monitoring wells, G118S and G127, which have occasionally shown trace concentrations of vinyl chloride in the past ten years. A work plan dated May 30, 2012, for two additional rounds of groundwater sampling at the Site was sent to the U.S. EPA for review and comment.

2.0 SCOPE OF MONITORING PROGRAM

The District has performed 25 total groundwater sampling events at the Site over the past 21 years. Two rounds of sampling were conducted during the RI in 1991 and 1992, and another round was conducted during the FS in 1995. Since 1997, a total of 22 rounds of groundwater monitoring have taken place at the Site. Eight sampling events were conducted under the Quarterly Groundwater Monitoring Program between 1997 and 2000. Fourteen additional rounds of groundwater monitoring have been conducted under the LTGMP between March 2001 and March 2012.

The original Monitoring Plan (Montgomery Watson, 2001) consisted of five rounds of monitoring between March 2001 and March 2004. Following the fifth sampling event, MWH Americas, Inc. (MWH) and the District evaluated the groundwater results and recommended extending the groundwater monitoring program for three additional rounds. As outlined in the *Revised Long-Term Groundwater Monitoring Program Summary Report* (MWH, February 2005), three additional rounds of groundwater monitoring were conducted between March 2005 and September 2006. In the *Long-Term Groundwater Monitoring Report, Eighth Round* (MWH, December 2006), MWH and the District recommended three additional rounds of groundwater sampling, each one to be conducted during the spring, beginning in 2007. These additional rounds were conducted in March 2007, March 2008, and March 2009. Following the March 2009 sampling event, the District voluntarily proposed to extend the groundwater monitoring program for three additional rounds. However, MWH and the District recommended modifying the current groundwater monitoring program to reduce the number of wells sampled. In addition, it was recommended that groundwater samples only be analyzed for volatile organic compounds (VOCs). Complete details of the modified groundwater monitoring program can be found in the *Long-Term Groundwater Monitoring Report, Eleventh Round* (MWH, June 2009).

The groundwater sampling that is the subject of this report was conducted during March 2012, and is the last of the three additional proposed sampling events. The table below is a summary of the completed and planned sampling events for the Site.

Round	Date	Event Number
Remedial Investigation		
First Round	Sep 1991	-
Second Round	Jan 1992	-
Feasibility Study		
First Round	Jun 1995	-
Quarterly Groundwater Monitoring Program		
First Round	Nov 1997	1
Second Round	Jul 1998	2
Third Round	Oct 1998	3
Fourth Round	Feb 1999	4
Fifth Round	May 1999	5
Sixth Round	Aug 1999	6
Seventh Round	Nov 1999	7
Eighth Round	Feb 2000	8
Long-Term Groundwater Monitoring Program		
First Round	Mar 2001	9
Second Round	Dec 2001	10
Third Round	Sep 2002	11
Fourth Round	Jun 2003	12
Fifth Round	Mar 2004	13
Sixth Round	Mar 2005	14
Seventh Round	Dec 2005	15
Eighth Round	Sep 2006	16
Ninth Round	Mar 2007	17
Tenth Round	Mar 2008	18
Eleventh Round	Mar 2009	19
Twelfth Round	Mar 2010	20
Thirteenth Round	Mar 2011	21
Fourteenth Round	Mar 2012	22
Fifteenth Round	Planned Jun 2012	23
Sixteenth Round	Planned Sep 2012	24

The purpose of the LTGMP is to:

- Monitor contaminant levels in groundwater to confirm that they are not increasing to a level that could jeopardize either human health or the environment;
- Evaluate the effectiveness of the treatment/containment components on the landfill;
- Detect changes in the chemical composition of groundwater at and adjacent to the Site; and
- Demonstrate natural attenuation continues to be an effective remedial strategy for impacted groundwater.

The current monitoring program consists of collecting groundwater level measurements at 26 monitoring wells, surveying surface water elevations at seven locations, groundwater sampling at four upper aquifer wells (G117, G118S, G126, and G127), and laboratory analysis of the samples. In addition, one bedrock aquifer well, G138, is sampled in order to monitor any potential migration of VOCs into the bedrock aquifer.

The District is proposing that two additional rounds of groundwater monitoring be conducted during the second and third quarters of 2012 to prepare for removal of the Site from the NPL. Groundwater samples will be collected at the two monitoring wells, G118S and G127, which have occasionally shown trace concentrations of vinyl chloride in the past ten years.

3.0 SUMMARY OF FIELD ACTIVITIES

3.1 GROUNDWATER SAMPLING

Groundwater samples were collected from five monitoring wells at the Site on March 14 and March 15, 2012. The samples were collected in accordance with procedures described in the U.S. EPA approved *Revised Pre-Design Investigation Activities Report, Appendix F* (Montgomery Watson, July 1997) and all subsequent and approved addenda. The samples were analyzed and validated in accordance with the *Quality Assurance Project Plan* (QAPP), [Volume IV of the *Pre-Design Investigation Activities Report* (Montgomery Watson, August 1996)]. The sampling sequence and procedures are summarized below:

- Static water levels were measured at 26 monitoring locations (Table 1) on March 14, 2012.
- Water elevations of nearby surface water bodies (i.e., Silver Lake, Pine Lake, Sand Pond, three locations along Spring Brook and one location on the west branch of the DuPage River) were measured by a licensed surveyor on March 14, 2012. Surface water elevations are included in Table 1.
- Groundwater samples were collected at five monitoring wells. Monitoring wells were purged with a decontaminated, submersible pump using low-flow methods. Dedicated tubing was used in each well. Wells were purged until field parameters (i.e., pH, specific conductivity, turbidity, dissolved oxygen, temperature, and oxidation-reduction potential) stabilized. Results of the stabilized field parameters are listed in Table 2.
- Laboratory provided sample bottles were filled from the discharge tubing following stabilization.
- Quality control samples (e.g., duplicates, field blanks, and matrix spike/matrix spike duplicates) were collected at frequencies specified in the QAPP.
- Following collection, the samples were placed in coolers packed with ice. The samples were delivered under chain-of-custody to First Environmental Laboratories in Naperville, Illinois for analysis.

3.2 ANALYTICAL RESULTS

The groundwater samples were analyzed for Target Compound List VOCs. All samples were analyzed in accordance with the analytical methods and required practical quantitation limits outlined in the QAPP and in the QAPP addenda. The laboratory-supplied data package (Appendix A) was reviewed and validated by MWH in accordance with the QAPP and U.S. EPA guidance. The validation report is included in Appendix B.

The validated analytical results from the March 2012 sampling event are summarized in Table 3. The U.S. EPA's Maximum Contaminant Levels (MCLs) and Illinois Environmental Protection Agency (IEPA) Class I Groundwater Standards (i.e., "regulatory standards") are also listed in Table 3. A summary of detected compounds and groundwater standards is provided in Table 4.

As shown in Table 3, only one VOC was detected during the fourteenth round of long-term groundwater monitoring. Cis-1,2-dichloroethene (cis-1,2-DCE) was detected in the sample collected from monitoring well G127 at a concentration of 7.6 micrograms per liter ($\mu\text{g}/\text{L}$), below its regulatory standard of 70 $\mu\text{g}/\text{L}$. Cis-1,2-DCE was also detected in the duplicate sample collected from G127 at a concentration of 6.3 $\mu\text{g}/\text{L}$. Cis-1,2-DCE was detected in the sample collected from G127 at a concentration of 7.8 $\mu\text{g}/\text{L}$ during the thirteenth round of sampling in March 2011. Vinyl chloride, which has occasionally been detected at this well in the past, was not detected in the sample collected during the March 2012 sampling event.

3.3 COMPARISON TO HISTORIC ANALYTICAL RESULTS

Review of historical data and Table 4 indicates the continuation of decreasing concentration and decreasing total number of detections of the contaminants of concern with time.

- The number of VOCs detected in groundwater samples is decreasing with time.** During the first round of the RI in September 1991, a total of seven VOCs were detected in samples from nine monitoring wells. Now over 20 years later, only one VOC was detected in samples during the March 2012 event. Additionally, benzene has not been detected in groundwater during the 14 rounds of long-term groundwater monitoring conducted since 2001. The chlorinated organic suite of compounds (tetrachloroethene [PCE], trichloroethene [TCE], cis- and trans-1,2-dichloroethene, and vinyl chloride) are now detected less frequently and at lower concentrations. TCE and trans-1,2-dichloroethene have not been detected at any of the monitoring wells in the samples collected since 2001. PCE has been detected only once, during round six,

at a low concentration (5.6 µg/L). During March 2012, only one VOC, cis-1,2-DCE, was detected in the sample collected from monitoring well G127.

- **The concentrations of detected VOCs are also decreasing with time.** The maximum detected concentration of cis-1,2-DCE was 120 µg/L during the second round of RI sampling in January 1992. Currently, the maximum detected concentration of cis-1,2-DCE is 7.6 µg/L, detected at G127. The regulatory standard for cis-1,2-DCE is 70 µg/L.
- **The detected concentrations of cis-1,2-dichloroethene and vinyl chloride in the outwash detection wells are decreasing with time.** For presentation purposes, a trendline analysis for the concentrations of cis-1,2-DCE and vinyl chloride in monitoring wells G118S and G127 is shown in Appendix C. The detected (and non-detected) concentrations of cis-1,2-DCE continue to represent a downward trend in concentration versus time.

The absence of VOC detections in compliance well G138 during the March 2012 sampling event continues to confirm that VOCs are not migrating off the Site. VOCs have not been detected at compliance wells during any of the 14 rounds of the Long-Term Groundwater Monitoring Program.

3.4 GROUNDWATER LEVEL MEASUREMENTS

Surface and groundwater elevations were measured prior to groundwater sample collection on March 14, 2012. Water levels and elevations are summarized in Table 1.

3.4.1 Upper Aquifer - Glacial Outwash

A plot of the water table for the upper glacial outwash aquifer is presented in Figure 5. The approximate northern boundary of the glacial aquifer is within the southwest portion of the landfill. The direction of groundwater flow in the glacial aquifer is to the south-southwest. Groundwater flow and the relationship of surface water elevations to groundwater elevations are consistent with the groundwater flows defined in previous monitoring reports.

3.4.2 Lower Aquifer - Bedrock

The potentiometric surface for the lower aquifer is presented in Figure 6. The direction of groundwater flow is to the southwest toward the West Branch of the DuPage River. The flow direction is consistent with the groundwater flow identified in previous monitoring reports.

4.0 SUMMARY

Water level measurements collected in March 2012 indicate that the groundwater flow regime is similar to that shown by historical data. Groundwater in the upper aquifer near the landfill flows to the south and southwest towards the West Branch of the DuPage River. Groundwater flow in the lower aquifer is to the southwest, also toward the West Branch of the DuPage River.

Four upper aquifer wells and one lower aquifer well were sampled in March 2012. Only one VOC was detected in the samples collected from the monitoring wells during March 2012. Cis-1,2-DCE was detected in the sample collected from G127 at a concentration of 7.6 µg/L which is significantly below the regulatory standard of 70 µg/L. Vinyl chloride, which has occasionally been detected at G127, was not detected during the March 2012 sampling event. These results continue to show evidence of decreasing trends in both the number of VOC analytes detected and the concentrations of VOCs. The absence of VOC detections in compliance well G138 during the March 2012 sampling event continues to confirm that impacted groundwater is not migrating off the Site. VOCs have not been detected at compliance wells during any of the 14 rounds of the LTGMP.

5.0 RECOMMENDATIONS

There is strong and consistent evidence that the combined remedy, which includes landfill containment/treatment systems and natural attenuation in groundwater, are protective of human health and environment.

As outlined in the *Long-Term Groundwater Monitoring Report, Eleventh Round* (MWH, June 2009), three rounds of annual sampling were to be conducted from 2010 through 2012. This sampling event was the last of the three proposed rounds.

The District proposes to conduct two additional groundwater sampling events at the Site. Sampling events will be conducted during the second and third quarters of 2012. Groundwater samples will be collected at monitoring wells G118S and G127, which have occasionally shown trace concentrations of vinyl chloride over the past 10 years. If analytical results for the two additional sampling events are below regulatory standards, the groundwater monitoring program will be complete.

6.0 REFERENCES

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TABLES

Table 1
Summary of Groundwater Level Measurements
Long-Term Groundwater Monitoring Program - Round 14 (March 2012)
Blackwell Landfill, DuPage County, Illinois

Deep Monitoring Wells (Bedrock)

Well Designation	Depth to Water (feet)	TOIC Elevation (ft amsl)	Groundwater Elevation (ft amsl)	Notes
G128D	14.45	707.62	693.17	Detection Well
G133D	15.11	708.14	693.03	Compliance Well
G138	15.74	708.79	693.05	Compliance Well
G140D	12.50	705.81	693.31	Detection Well

Shallow Monitoring Wells (Glacial Outwash)

Well Designation	Depth to Water (feet)	TOIC Elevation (ft amsl)	Groundwater Elevation (ft amsl)	Notes
G117	12.26	705.79	693.53	Detection Well
G118S	16.48	711.56	695.08	Detection Well
G122	13.35	706.62	693.27	Compliance Well
G126	11.03	704.61	693.58	Detection Well
G127	12.93	706.72	693.79	Detection Well
G129	8.83	702.86	694.03	Detection Well
G130	15.51	710.40	694.89	Detection Well
G147	12.85	704.86	692.01	Compliance Well

Water Level Wells

Well Designation	Depth to Water (feet)	TOIC Elevation (ft amsl)	Groundwater Elevation (ft amsl)	Notes
P2	7.09	699.32	692.23	Glacial Outwash Aquifer Well
G107S	14.18	708.60	694.42	Glacial Outwash Aquifer Well
G114	15.22	709.53	694.31	Glacial Outwash Aquifer Well
G121	10.76	703.71	692.95	Glacial Outwash Aquifer Well
G123	12.42	706.21	693.79	Glacial Outwash Aquifer Well
G133S	14.69	708.13	693.44	Glacial Outwash Aquifer Well
G142	15.40	709.25	693.85	Glacial Outwash Aquifer Well
G143	12.60	706.56	693.96	Glacial Outwash Aquifer Well
G144	6.79	701.88	695.09	Glacial Outwash Aquifer Well
G132D	25.39	725.99	700.60	Bedrock Well
G134	26.53	727.20	700.67	Bedrock Well
G135	25.41	721.07	695.66	Bedrock Well
G137	9.03	702.08	693.05	Bedrock Well
G139	8.96	702.22	693.26	Bedrock Well

Surface Water

Measurement Location	Surface Water Elevation (ft amsl)
Silver Lake	708.48
Pool West of Silver Lake	703.36
Sand Pond	693.03
Pine Lake	692.71
Spring Brook - No. 2	701.28
Spring Brook - No. 3	695.20
DuPage River	689.56

Notes:

Surface water elevations measured by Area Survey Company on March 14, 2012.

Groundwater levels measured by MWH on March 14, 2012.

ft amsl = feet above mean sea level

TOIC = Top of inner casing

Table 2
Summary of Stabilized Field Parameters
Long-Term Groundwater Monitoring Program - Round 14 (March 2012)
Blackwell Landfill, DuPage County, Illinois

Deep Monitoring Wells (Bedrock)

Well Number	Type of Well	pH	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Oxidation - Reduction Potential (mV)
G138	Compliance	7.34	0.882	0.0	1.02	12.60	44

Shallow Monitoring Wells (Glacial Outwash)

Well Number	Type of Well	pH	Specific Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Oxidation - Reduction Potential (mV)
G117	Detection	7.23	0.759	103	0.00	13.78	-99
G118S	Detection	6.91	1.12	0.0	0.00	10.52	205
G126	Detection	6.94	1.06	4.1	0.00	13.42	114
G127	Detection	7.20	0.928	106	0.00	11.42	-78

Notes:

°C - Degrees Celsius

mg/L - Milligrams per liter

mS/cm - Millisiemens per centimeter

mV - Millivolts

NTU - Nephelometric turbidity units

Table 3
Validated Analytical Results
Long-Term Groundwater Monitoring Program - Round 14 (March 2012)
Blackwell Landfill, DuPage County, Illinois

Sample Name Sample Date Parameter	U.S. EPA MCL	IEPA Class I Standard	Units	BW-GW-G117-22 03/14/12	BW-GW-G118S-22 03/15/12	BW-GW-G126-22 03/14/12	BW-GW-G127-22 03/15/12	BW-GW-G127-922 03/15/12	BW-GW-G138-22 03/14/12
				Conc LQ/DVQ PQL	Conc LQ/DVQ PQL	Conc LQ/DVQ PQL	Conc LQ/DVQ PQL	Conc LQ/DVQ PQL	Conc LQ/DVQ PQL
VOC									
Acetone			700*	ug/L U/ 100	ug/L U/ 100	ug/L U/ 100	ug/L U/ 100	ug/L U/ 100	ug/L U/ 100
Benzene	5	5	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
Bromodichloromethane	100/80 (THM)	0.02a	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0
Bromoform	100/80 (THM)	0.2a	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0
Bromomethane (Methyl bromide)		9.8*	ug/L U/ 5.0	ug/L U/ 10.0	ug/L U/ 5.0	ug/L U/ 10.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
2-Butanone (MEK)			ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 10.0
Carbon disulfide		700*	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
Carbon tetrachloride	5	5	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
Chlorobenzene (Monochlorobenzene)	100	100	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
Chlorodibromomethane	100/80 (THM)	140*	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0
Chloroethane			ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0
Chloroform	100/80 (THM)	0.02a	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0
Chloromethane			ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0
1,1-Dichloroethane		700*	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
1,2-Dichloroethane	5	5	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
1,1-Dichloroethene	7	7	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
cis-1,2-Dichloroethene	70	70	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L 7.6 / 5.0	ug/L 6.3 / 5.0	ug/L 5.0
trans-1,2-Dichloroethene	100	100	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
1,2-Dichloropropane	5	5	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
cis-1,3-Dichloropropene			ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0
trans-1,3-Dichloropropene		1a (cis + trans)	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0	ug/L U/ 1.0
Ethyl benzene	700	700	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
2-Hexanone (MBK)			ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0
Methyl-tert-butylether (MTBE)		70	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
4-Methyl-2-pentanone (MIBK)			ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0
Methylene chloride	5	5	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
Styrene	100	100	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
1,1,2,2-Tetrachloroethane			ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
Tetrachloroethene	5	5	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
Toluene	1,000	1,000	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
1,1,1-Trichloroethane	200	200	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
1,1,2-Trichloroethane	5	5	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
Trichloroethene	5	5	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0
Vinyl Acetate		7,000*	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0	ug/L U/ 10.0
Vinyl Chloride	2	2	ug/L U/ 2.0	ug/L U/ 2.0	ug/L U/ 2.0	ug/L U/ 2.0	ug/L U/ 2.0	ug/L U/ 2.0	ug/L U/ 2.0
Xylene, Total	10,000	10,000	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0	ug/L U/ 5.0

Table 3
Validated Analytical Results
Long-Term Groundwater Monitoring Program - Round 14 (March 2012)
Blackwell Landfill, DuPage County, Illinois

Sample Name Sample Date Parameter	U.S. EPA MCL	IEPA Class I Standard	Units	BW-GW-FB01-22 03/14/12			BW-GW-FB02-22 03/15/12			BW-GW-TB01-22 03/14/12		
				Conc	LQ/DVQ	PQL	Conc	LQ/DVQ	PQL	Conc	LQ/DVQ	PQL
VOC												
Acetone			700*	ug/L	U/	100	U/	100		U/	100	
Benzene	5		5	ug/L	U/	5.0	U/	5.0		U/	5.0	
Bromodichloromethane	100/80 (THM)	0.02a	ug/L	U/	1.0		U/	1.0		U/	1.0	
Bromoform	100/80 (THM)	0.2a	ug/L	U/	1.0		U/	1.0		U/	1.0	
Bromomethane (Methyl bromide)		9.8*	ug/L	U/	5.0		U/	5.0		U/	5.0	
2-Butanone (MEK)			ug/L	U/	10.0		U/	10.0		U/	10.0	
Carbon disulfide		700*	ug/L	U/	5.0		U/	5.0		U/	5.0	
Carbon tetrachloride	5	5	ug/L	U/	5.0		U/	5.0		U/	5.0	
Chlorobenzene (Monochlorobenzene)	100	100	ug/L	U/	5.0		U/	5.0		U/	5.0	
Chlorodibromomethane	100/80 (THM)	140*	ug/L	U/	1.0		U/	1.0		U/	1.0	
Chloroethane			ug/L	U/	10.0		U/	10.0		U/	10.0	
Chloroform	100/80 (THM)	0.02a	ug/L	U/	1.0		U/	1.0		U/	1.0	
Chloromethane			ug/L	U/	10.0		U/	10.0		U/	10.0	
1,1-Dichloroethane		700*	ug/L	U/	5.0		U/	5.0		U/	5.0	
1,2-Dichloroethane	5	5	ug/L	U/	5.0		U/	5.0		U/	5.0	
1,1-Dichloroethene	7	7	ug/L	U/	5.0		U/	5.0		U/	5.0	
cis-1,2-Dichloroethene	70	70	ug/L	U/	5.0		U/	5.0		U/	5.0	
trans-1,2-Dichloroethene	100	100	ug/L	U/	5.0		U/	5.0		U/	5.0	
1,2-Dichloropropane	5	5	ug/L	U/	5.0		U/	5.0		U/	5.0	
cis-1,3-Dichloropropene			1a (cis + trans)	ug/L	U/	1.0	U/	1.0		U/	1.0	
trans-1,3-Dichloropropene			ug/L	U/	1.0		U/	1.0		U/	1.0	
Ethyl benzene	700	700	ug/L	U/	5.0		U/	5.0		U/	5.0	
2-Hexanone (MBK)			ug/L	U/	10.0		U/	10.0		U/	10.0	
Methyl-tert-butylether (MTBE)		70	ug/L	U/	5.0		U/	5.0		U/	5.0	
4-Methyl-2-pentanone (MIBK)			ug/L	U/	10.0		U/	10.0		U/	10.0	
Methylene chloride	5	5	ug/L	U/	5.0		U/	5.0		U/	5.0	
Styrene	100	100	ug/L	U/	5.0		U/	5.0		U/	5.0	
1,1,2,2-Tetrachloroethane			ug/L	U/	5.0		U/	5.0		U/	5.0	
Tetrachloroethene	5	5	ug/L	U/	5.0		U/	5.0		U/	5.0	
Toluene	1,000	1,000	ug/L	U/	5.0		U/	5.0		U/	5.0	
1,1,1-Trichloroethane	200	200	ug/L	U/	5.0		U/	5.0		U/	5.0	
1,1,2-Trichloroethane	5	5	ug/L	U/	5.0		U/	5.0		U/	5.0	
Trichloroethene	5	5	ug/L	U/	5.0		U/	5.0		U/	5.0	
Vinyl Acetate		7,000*	ug/L	U/	10.0		U/	10.0		U/	10.0	
Vinyl Chloride	2	2	ug/L	U/	2.0		U/	2.0		U/	2.0	
Xylene, Total	10,000	10,000	ug/L	U/	5.0		U/	5.0		U/	5.0	

Notes:

Conc = concentration

IEPA = Illinois Environmental Protection Agency

LQ/DVQ = Lab Qualifiers/Data Validation Qualifiers

MCL = Maximum Contaminant Level

PQL = Practical Quantitation Limit

THM = Trihalomethanes - Total for all THMs cannot exceed the 80 ug/L level

ug/L = Micrograms per liter

U.S. EPA = United States Environmental Protection Agency

VOCs = Volatile Organic Compounds

* not listed as standard in 620.410:

a - Health Advisory Conc. equal to Acceptable Detection Limit (ADL) for carcinogens

Sample Label Identifiers:

FB - field blank

GW - groundwater

G117 - well identification

TB - trip blank

-22 - indicates the sampling round beginning after the completion of the Feasibility Study in 1995

922 - duplicate sample

Qualifier Definitions:

U/ - Not detected

Table 4
Summary of Detections in Monitoring Wells
Long-Term Groundwater Monitoring Program - Round 14 (March 2012)
Blackwell Landfill, DuPage County, Illinois

Parameter	U.S. EPA MCL	IEPA Class I Standard	Units	Outwash Detection			Bedrock Compliance		
				Detections	Range		Detections	Range	
					Min	Max		Min	Max
VOCs									
cis-1,2-Dichloroethene	70	70	ug/L	1 / 4	ND	7.6	0 / 1	ND	ND

Notes:

IEPA = Illinois Environmental Protection Agency

MCL = Maximum Contaminant Level

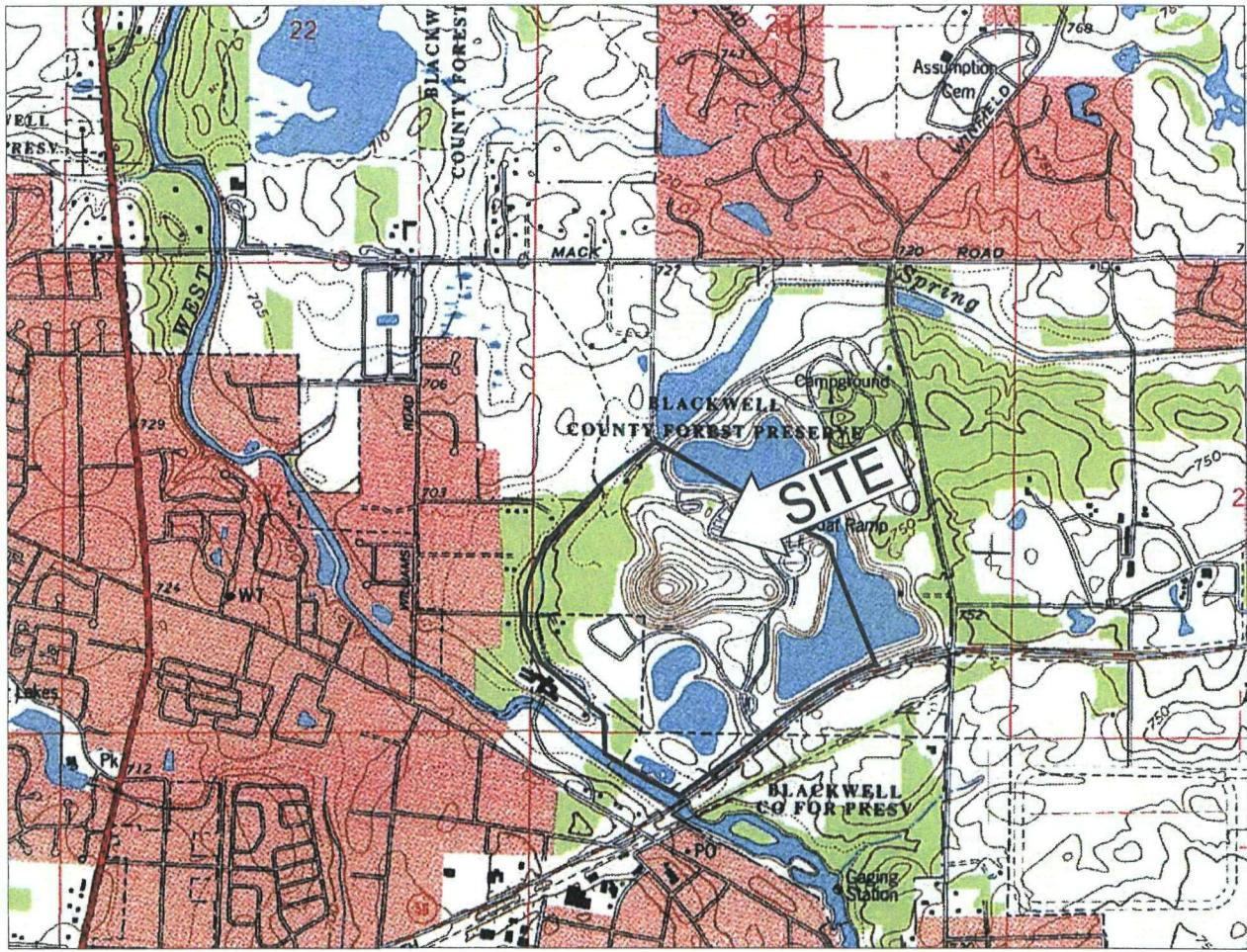
ND = Not Detected

ug/L = Micrograms per Liter

U.S. EPA = United States Environmental Protection Agency

VOCs = Volatile organic compounds

FIGURES



BASE MAP DEVELOPED FROM THE
NAPERVILLE, ILLINOIS 7.5 MINUTE
U.S.G.S. TOPOGRAPHIC QUADRANGLE MAP
DATED: 1993



2000

SCALE IN FEET



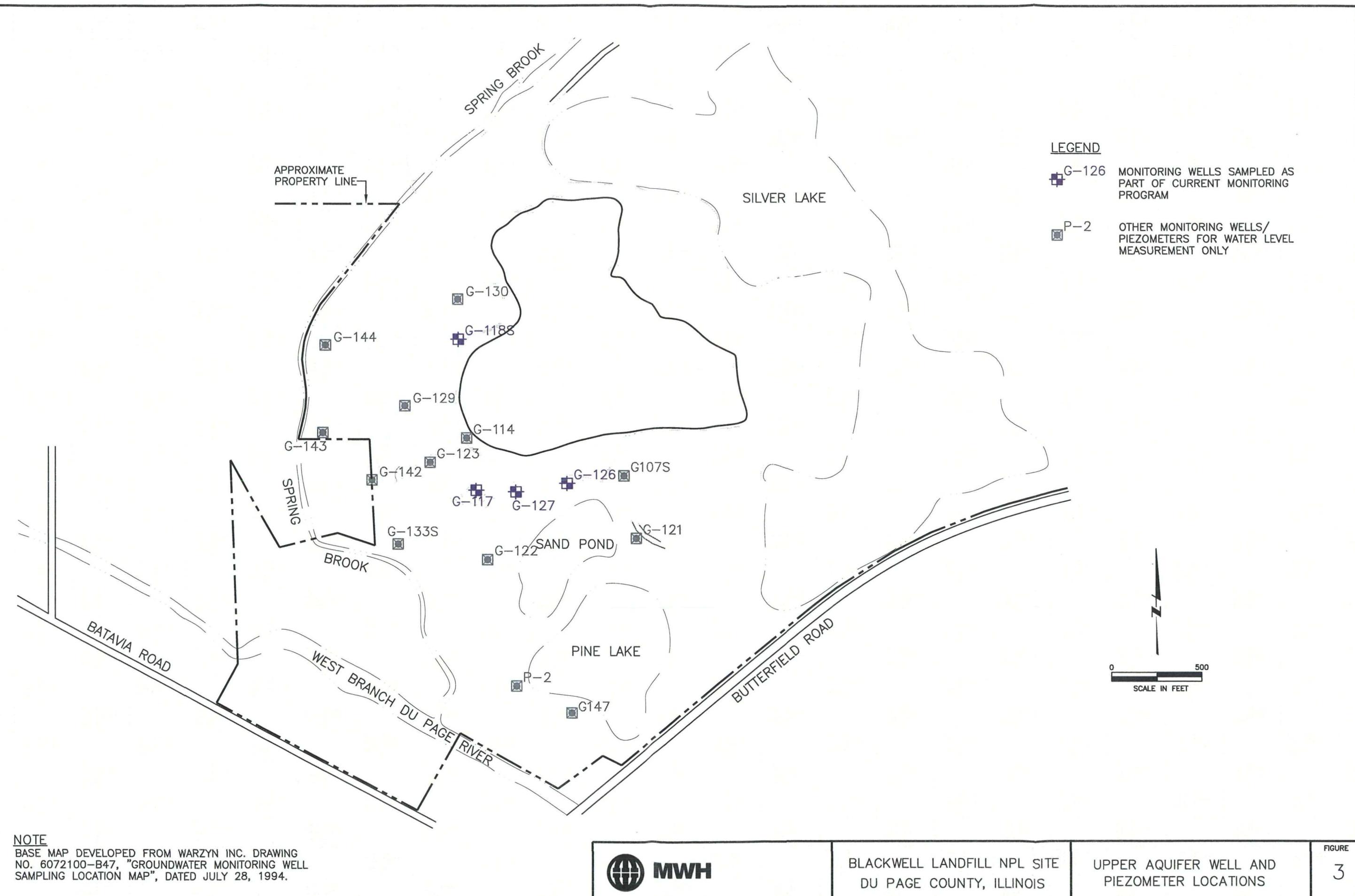
BLACKWELL LANDFILL NPL SITE
DUPAGE COUNTY, ILLINOIS

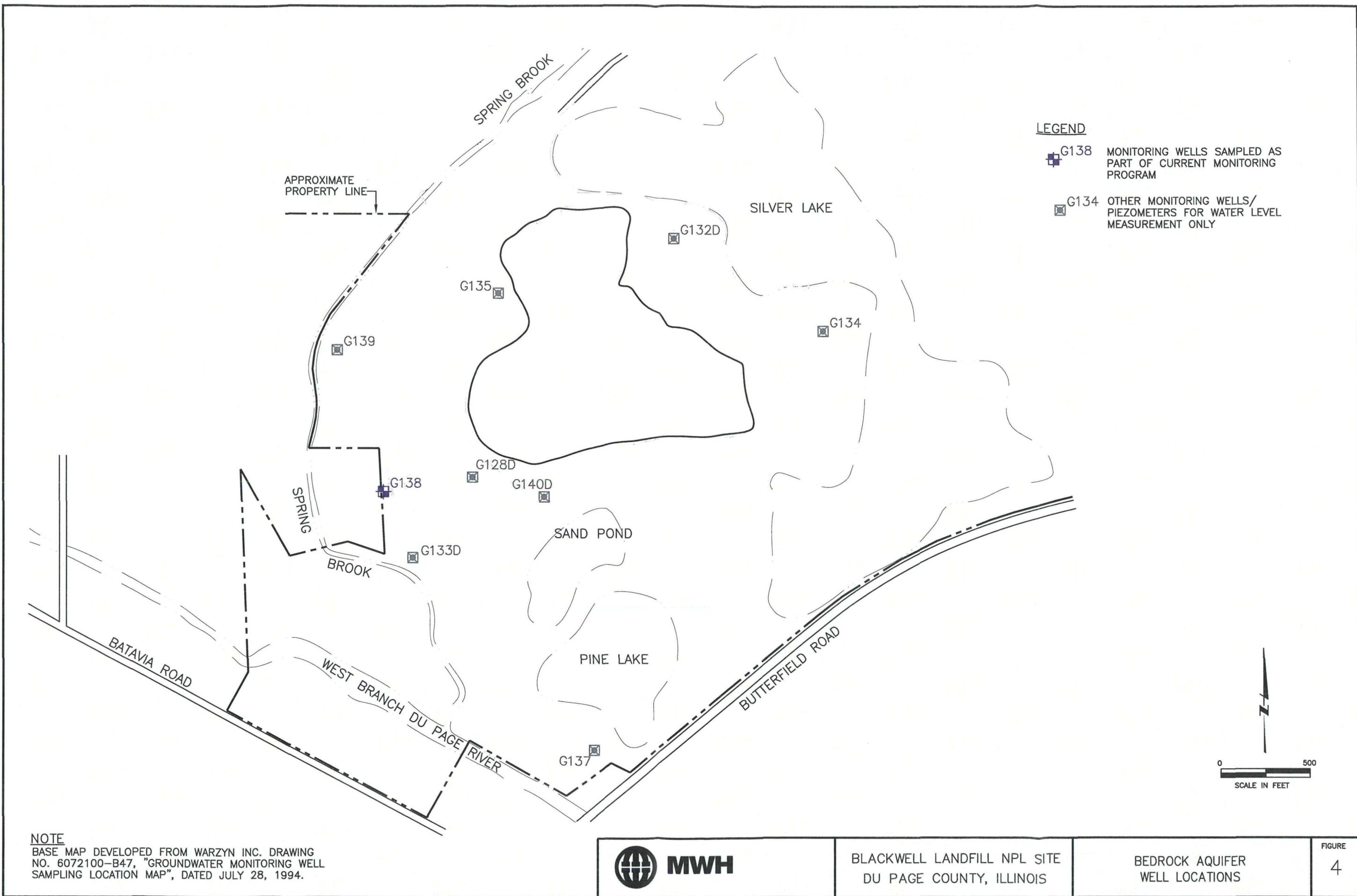
SITE LOCATION MAP

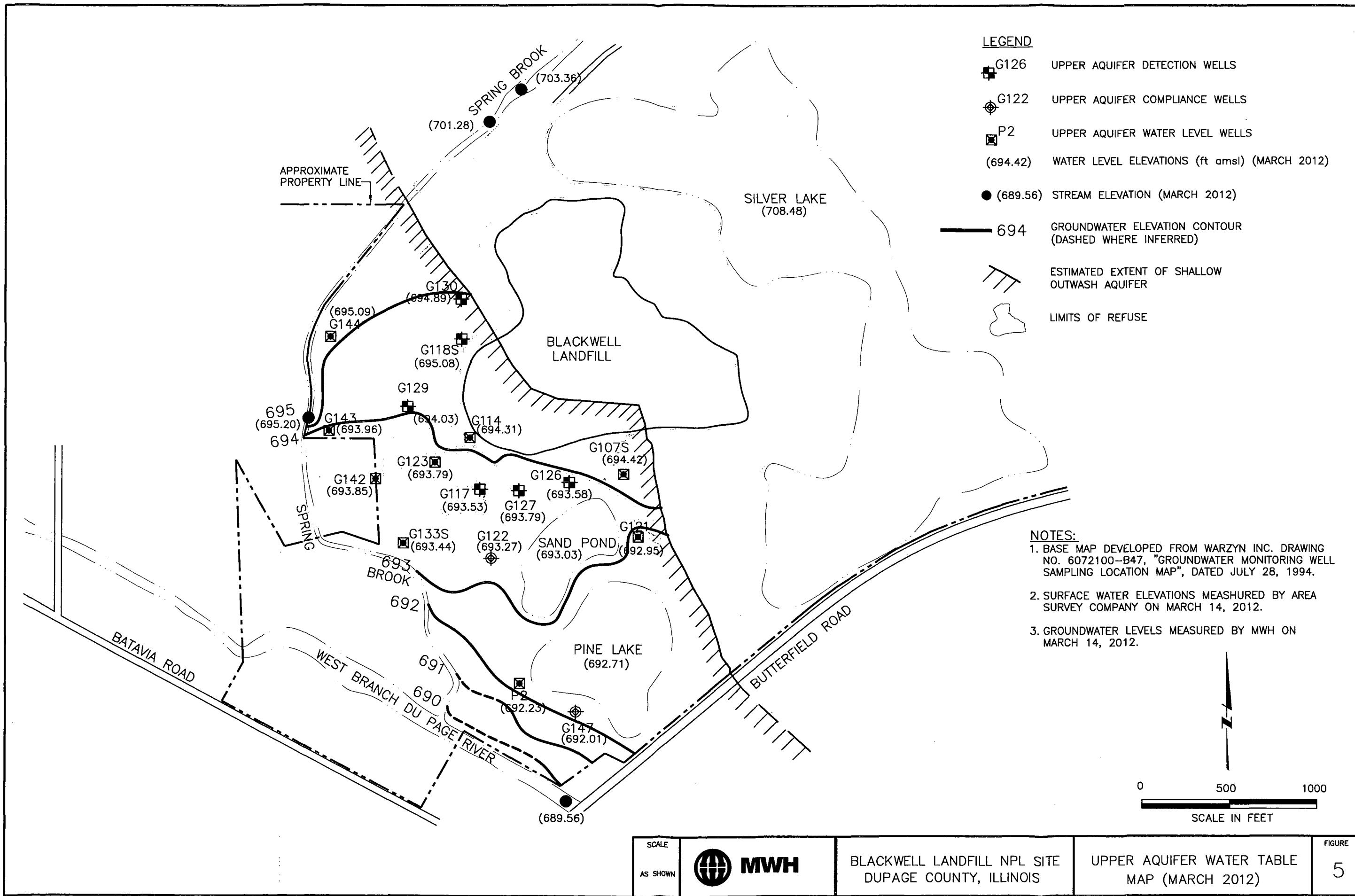
FIGURE

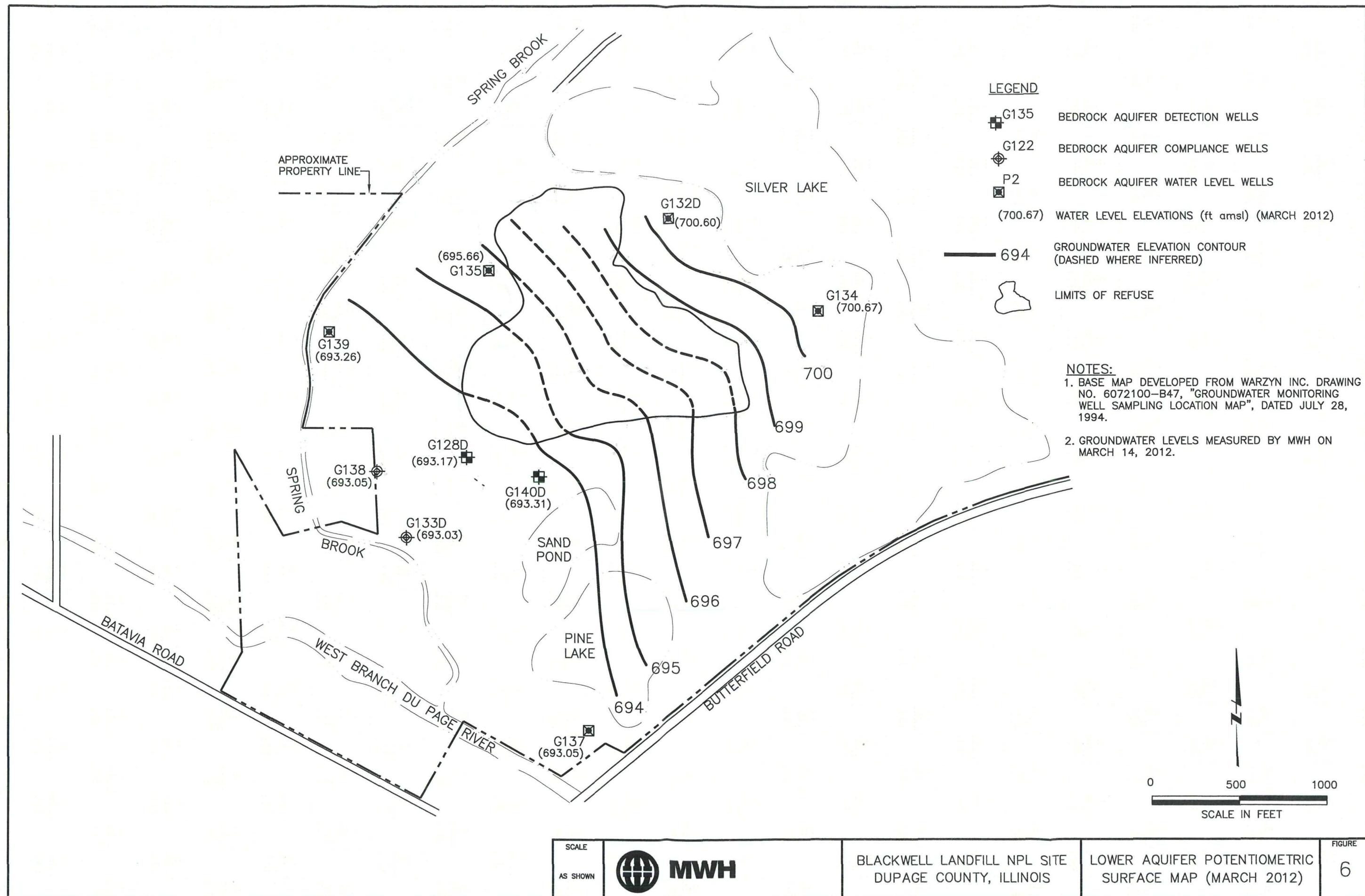
1





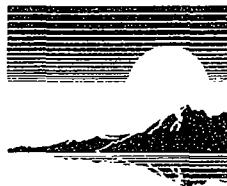






APPENDIX A

LABORATORY ANALYTICAL DATA SHEETS



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March 22, 2012

Mr. Justin Finger
MONTGOMERY WATSON HARZA
175 West Jackson Boulevard,
Suite 1900
Chicago, IL 60604

Project ID: Blackwell Groundwater # 1007333.03161201

First Environmental File ID: 12-1176

Date Received: March 15, 2012

Dear Mr. Justin Finger:

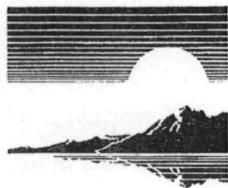
The above referenced project was analyzed as directed on the enclosed chain of custody record.

All Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our accreditation number is 100292 and our current certificate is number 002902: effective 03/08/2012 through 02/28/2013.

I thank you for the opportunity to be of service to you and look forward to working with you again in the future. Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (630) 778-1200.

Sincerely,

Bill Mottashed
Project Manager



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Case Narrative

MONTGOMERY WATSON HARZA

Project ID: **Blackwell Groundwater # 1007333.03161201**

First Environmental File ID: **12-1176**

Date Received: **March 15, 2012**

Flag	Description	Flag	Description
<	Analyte not detected at or above the reporting limit.	L+	LCS recovery outside control limits; high bias.
B	Analyte detected in associated method blank.	L-	LCS recovery outside control limits; low bias.
C	Identification confirmed by GC/MS.	M	MS recovery outside control limits; LCS acceptable.
D	Surrogates diluted out; recovery not available.	M+	MS recovery outside control limits high bias; LCS acceptable.
E	Estimated result; concentration exceeds calibration range.	M-	MS recovery outside control limits low bias; LCS acceptable.
F	Field measurement.	N	Analyte is not part of our NELAC accreditation.
		ND	Analyte was not detected using a library search routine; No calibration standard was analyzed.
G	Surrogate recovery outside control limits; matrix effect.	P	Chemical preservation pH adjusted in lab.
H	Analysis or extraction holding time exceeded.	Q	The analyte was determined by a GC/MS database search.
J	Estimated result; concentration is less than calib range.	S	Analyte was sub-contracted to another laboratory for analysis.
K	RPD outside control limits.	T	Sample temperature upon receipt exceeded 0-6°C
RL	Routine Reporting Limit (Lowest amount that can be detected when routine weights/volumes are used without dilution.)	W	Reporting limit elevated due to sample matrix.

All quality control criteria, as outlined in the methods, have been met except as noted below or on the following analytical report.

Sample Batch Comments:

Sample acceptance criteria were met.



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Analytical Report

Client: MONTGOMERY WATSON HARZA
Project ID: Blackwell Groundwater # 1007333.0316120
Sample ID: BW-GW-TB01-22
Sample No: 12-1176-001

Date Collected: 03/14/12
Time Collected: 10:30
Date Received: 03/15/12
Date Reported: 03/22/12

Analyte	Result	R.L.	Units	Flags
Volatile Organic Compounds		Method: 5030B/8260B		
Analysis Date: 03/20/12				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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Analytical Report

Client: MONTGOMERY WATSON HARZA
Project ID: Blackwell Groundwater # 1007333.0316120
Sample ID: BW-GW-FB01-22
Sample No: 12-1176-002

Date Collected: 03/14/12
Time Collected: 10:45
Date Received: 03/15/12
Date Reported: 03/22/12

Analyte	Result	R.L.	Units	Flags
Volatile Organic Compounds		Method: 5030B/8260B		
Analysis Date: 03/20/12				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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Analytical Report

Client: MONTGOMERY WATSON HARZA
Project ID: Blackwell Groundwater # 1007333.0316120
Sample ID: BW-GW-G138-22
Sample No: 12-1176-003

Date Collected: 03/14/12
Time Collected: 12:14
Date Received: 03/15/12
Date Reported: 03/22/12

Analyte	Result	R.L.	Units	Flags
Volatile Organic Compounds		Method: 5030B/8260B		
Analysis Date: 03/20/12				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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Analytical Report

Client: MONTGOMERY WATSON HARZA
Project ID: Blackwell Groundwater # 1007333.0316120
Sample ID: BW-GW-G126-22
Sample No: 12-1176-004

Date Collected: 03/14/12
Time Collected: 14:24
Date Received: 03/15/12
Date Reported: 03/22/12

Analyte	Result	R.L.	Units	Flags
Volatile Organic Compounds		Method: 5030B/8260B		
Analysis Date: 03/20/12				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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Analytical Report

Client: MONTGOMERY WATSON HARZA
Project ID: Blackwell Groundwater # 1007333.0316120
Sample ID: BW-GW-G117-22
Sample No: 12-1176-005

Date Collected: 03/14/12
Time Collected: 15:42
Date Received: 03/15/12
Date Reported: 03/22/12

Analyte	Result	R.L.	Units	Flags
Volatile Organic Compounds		Method: 5030B/8260B		
Analysis Date: 03/20/12				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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Analytical Report

Client: MONTGOMERY WATSON HARZA
Project ID: Blackwell Groundwater # 1007333.0316120
Sample ID: BW-GW-G118S-22
Sample No: 12-1176-006

Date Collected: 03/15/12
Time Collected: 7:55
Date Received: 03/15/12
Date Reported: 03/22/12

Analyte	Result	R.L.	Units	Flags
Volatile Organic Compounds		Method: 5030B/8260B		
Analysis Date: 03/20/12				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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Analytical Report

Client: MONTGOMERY WATSON HARZA
Project ID: Blackwell Groundwater # 1007333.0316120
Sample ID: BW-GW-G127-22
Sample No: 12-1176-007

Date Collected: 03/15/12
Time Collected: 9:11
Date Received: 03/15/12
Date Reported: 03/22/12

Analyte	Result	R.L.	Units	Flags
Volatile Organic Compounds		Method: 5030B/8260B		
Analysis Date: 03/22/12				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	7.6	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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Analytical Report

Client: MONTGOMERY WATSON HARZA
Project ID: Blackwell Groundwater # 1007333.0316120
Sample ID: BW-GW-G127-922
Sample No: 12-1176-008

Date Collected: 03/15/12
Time Collected: 9:12
Date Received: 03/15/12
Date Reported: 03/22/12

Analyte	Result	R.L.	Units	Flags
Volatile Organic Compounds		Method: 5030B/8260B		
Analysis Date: 03/20/12				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	6.3	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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Analytical Report

Client: MONTGOMERY WATSON HARZA
Project ID: Blackwell Groundwater # 1007333.0316120
Sample ID: BW-GW-FB02-22
Sample No: 12-1176-009

Date Collected: 03/15/12
Time Collected: 9:40
Date Received: 03/15/12
Date Reported: 03/22/12

Analyte	Result	R.L.	Units	Flags
Volatile Organic Compounds		Method: 5030B/8260B		
Analysis Date: 03/20/12				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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CHAIN OF CUSTODY RECORD

Page 1 of 1 pgs

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1600 Shore Road, Suite D
Naperville, Illinois 60563
Phone: (630) 778-1200 • Fax: (630) 778-1233
E-mail: firstinfo@firstenv.com
IEPA Certification #100292

Company Name: MWH
Street Address: 175 W. JACKSON BLVD, SUITE 1900
City: CHICAGO State: IL Zip: 60604
Phone: (312) 831-3000 Fax: (312) 831-3999 e-mail: JUSTIN.E.FINGER@MWHGLOBAL.COM
Send Report To: JUSTIN FINGER Via: Fax e-mail
Sampled By: JUSTIN FINGER, TED BOBAK, CHRIS SWAN

Analyses

Project I.D.: BLACKWELL GROUNDWATER		VOCs											
P.O. #: 1007333.03161201													
Matrix Codes: S = Soil W = Water O = Other													
Date/Time Taken	Sample Description	Matrix										Comments	Lab I.D.
3/14/12 1030	BW-GW-TB01-22	W	X										12-1176-001
3/14/12 1045	BW-GW-FB01-22	W	X										002
3/14/12 1214	BW-GW-G138-22	W	X									MS/MSD	003
3/14/12 1424	BW-GW-G126-22	W	X										004
3/14/12 1542	BW-GW-G117-22	W	X										005
3/15/12 0755	BW-GW-G118S-22	W	X										006
3/15/12 0911	BW-GW-G127-22	W	X										007
3/15/12 0912	BW-GW-G127-922	W	X										008
3/15/12 0940	BW-GW-FB02-22	W	X										009

FOR LAB USE ONLY:

Cooler Temperature: 0.1-6°C Yes No °C

Received within 6 hrs. of collection: _____

Ice Present: Yes No

Sample Refrigerated: Yes No

Refrigerator Temperature: _____ °C

5035 Vials Frozen: Yes No

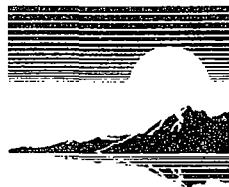
Freezer Temperature: _____ °C

Containers Received Preserved: Yes No

Need to meet: IL.TACO IN.RISC

Notes and Special Instructions: _____

Relinquished By: J.E. Date/Time 3/15/12 1030 Received By: Ryan Gr Date/Time 3/15/12 1020
Relinquished By: _____ Date/Time _____ Received By: _____ Date/Time _____
Rev. 9/08



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April 03, 2012

Mr. Justin Finger
MONTGOMERY WATSON HARZA
175 West Jackson Boulevard,
Suite 1900
Chicago, IL 60604

Dear Mr. Justin Finger:

The following data package includes the supporting quality control information for the following referenced project.

All Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our accreditation number is 100292 and our current certificate is number 002902: effective 03/08/2012 through 02/28/2013.

Project ID: **Blackwell Groundwater # 1007333.03161201**

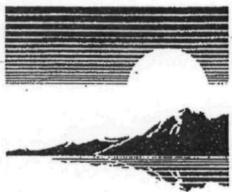
First Environmental File ID: **12-1176**

Date Received: **March 15, 2012**

All analyses were performed within established holding times, and all quality control criteria, as outlined in the methods, have been met except as noted here or noted on the submitted QC forms.

Reviewed By: Lorrie Franklin
Lorrie Franklin (QAO)

Date: 04/03/12



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Case Narrative

MONTGOMERY WATSON HARZA

Project ID: **Blackwell Groundwater # 1007333.03161201**

First Environmental File ID: **12-1176**

Date Received: **March 15, 2012**

Flag	Description	Flag	Description
<	Analyte not detected at or above the reporting limit.	L+	LCS recovery outside control limits; high bias.
B	Analyte detected in associated method blank.	L-	LCS recovery outside control limits; low bias.
C	Identification confirmed by GC/MS.	M	MS recovery outside control limits; LCS acceptable.
D	Surrogates diluted out; recovery not available.	M+	MS recovery outside control limits high bias; LCS acceptable.
E	Estimated result; concentration exceeds calibration range.	M-	MS recovery outside control limits low bias; LCS acceptable.
F	Field measurement.	N	Analyte is not part of our NELAC accreditation.
		ND	Analyte was not detected using a library search routine; No calibration standard was analyzed.
G	Surrogate recovery outside control limits; matrix effect.	P	Chemical preservation pH adjusted in lab.
H	Analysis or extraction holding time exceeded.	Q	The analyte was determined by a GC/MS database search.
J	Estimated result; concentration is less than calib range.	S	Analyte was sub-contracted to another laboratory for analysis.
K	RPD outside control limits.	T	Sample temperature upon receipt exceeded 0-6°C
RL	Routine Reporting Limit (Lowest amount that can be detected when routine weights/volumes are used without dilution.)	W	Reporting limit elevated due to sample matrix.

All quality control criteria, as outlined in the methods, have been met except as noted below or on the following analytical report.

Sample Batch Comments:

Sample acceptance criteria were met.

Sample List for Group:**VOA_Mar_20_2012**

Printing Date

Mar-27-2012

Lab File ID	EPA SAMPLE NO.	Lab Sample ID	Date Acq.	Date Rec.	Date Due
K50927.D	VTUN03	VTUN01	3/19/2012 12:51	3/15/2012	
K50974.D	VTUN01	VTUN01	3/20/2012 9:27	3/15/2012	
K50975.D	VSTD050	VSTD050	3/20/2012 9:42	3/15/2012	
K50977.D	ICVS050	ICVS050	3/20/2012 10:14	3/15/2012	
K50978.D	G138-22MS	12-1176-003MS	3/20/2012 10:30	3/15/2012	
K50979.D	ICVS050	ICVS050	3/20/2012 10:46	3/15/2012	
K50980.D	G138-22MSD	12-1176-003MSD	3/20/2012 11:02	3/15/2012	
K50984.D	VBLK01	VBLKW04	3/20/2012 12:06	3/15/2012	
K50986.D	G138-22	12-1176-003	3/20/2012 12:38	3/15/2012	
K50988.D	TB01-22	12-1176-001	3/20/2012 13:10	3/15/2012	
K50990.D	FB01-22	12-1176-002	3/20/2012 13:42	3/15/2012	
K50992.D	FB02-22	12-1176-009	3/20/2012 14:14	3/15/2012	
K50994.D	G126-22	12-1176-004	3/20/2012 14:45	3/15/2012	
K50996.D	G117-22	12-1176-005	3/20/2012 15:17	3/15/2012	
K50998.D	G118S-22	12-1176-006	3/20/2012 15:49	3/15/2012	
K51000.D	G127-922	12-1176-008	3/20/2012 16:21	3/15/2012	
K51006.D	VTUN02	VSTD200	3/22/2012 9:59	3/15/2012	
K51010.D	VSTD050	VSTD050	3/22/2012 11:14	3/15/2012	
K51015.D	ICVS050	ICVS050	3/22/2012 12:36	3/15/2012	
K51017.D	ICVS050	ICVS050	3/22/2012 13:09	3/15/2012	
K51022.D	VBLK02	VBLKW04	3/22/2012 14:32	3/15/2012	
K51023.D	G127-22	12-1176-007	3/22/2012 14:48	3/15/2012	

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: FIRST

Contract: MWHARZ

Lab Code: FEL

Case No.: BLACKW

SAS No.: _____

SDG No.: _____

	EPA SAMPLE NO.	SMC1 #	SMC2 #	SMC3 #	TOT OUT
01	ICVS050	94	100	106	0
02	G138-22MS	85	100	96	0
03	ICVS050	96	92	102	0
04	G138-22MSD	96	102	94	0
05	VBLK01	95	100	92	0
06	G138-22	98	98	93	0
07	TB01-22	92	96	98	0
08	FB01-22	92	98	93	0
09	FB02-22	96	96	90	0
10	G126-22	93	100	90	0
11	G117-22	94	99	91	0
12	G118S-22	97	102	94	0
13	G127-922	93	97	91	0
14	ICVS050	106	98	101	0
15	ICVS050	105	98	101	0
16	VBLK02	99	105	97	0
17	G127-22	110	96	105	0

QC LIMITS

SMC1	=	Dibromofluoromethane	(75-128)
SMC2	=	d8-Toluene	(90-112)
SMC3	=	4-Bromofluorobenzene	(72-120)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

3 Spike Recovery and RPD Summary Report - WATER

Method Path : C:\msdchem\1\METHODS\
Method File : K_VOW_EBMW.M
Title : VOCs; Method 8260/624 Aqueous; EnCon #1
Last Update : Mon Mar 19 15:49:18 2012
Response Via : Initial Calibration

Datafile Path: D:\DATA\2012\1203\120320\

-----Sample-----

-----Spike-----

File : K50978.D
Name : 12-1176-003MS MW H ARZ 50uL #14806/50mL Acq Time: 20 Mar 2012 10:30 am

--Spike Duplicate--

File : K50980.D
Name : 12-1176-003MSD MWHARZ 50uL #14806/50mL Acq Time: 20 Mar 2012 11:02 am

Compound	Sample	Spike	Spike	Dup	Spike	Dup	RPD	QC	Limits
	Conc	Added	Res	Res	%Rec	%Rec	RPD	% Rec	
1,1-Dichloroethene	0.0	50	48	59	96	119	21#	14	64-152
Benzene	0.0	50	48	51	95	102	7	11	77-132
Trichloroethene	0.0	50	50	52	101	104	3	14	78-138
Toluene	0.0	50	50	51	100	102	3	13	78-133
Chlorobenzene	0.0	50	48	52	97	103	7	13	78-137

- Fails Limit Check

3 Spike Recovery and RPD Summary Report - WATER

Method Path : C:\msdchem\1\METHODS\
Method File : K_VOW_EBMW.M
Title : VOCs; Method 8260/624 Aqueous; EnCon #1
Last Update : Mon Mar 19 15:49:18 2012
Response Via : Initial Calibration

Datafile Path: D:\DATA\2012\1203\120320\

-----Sample-----

File : K50984.D
Name : VBLKW04 Acq Time: 20 Mar 2012 12:06 pm

-----Spike-----

File : K50977.D
Name : ICVS050 50uL #14806/50mL Acq Time: 20 Mar 2012 10:14 am

--Spike Duplicate--

File : K50979.D
Name : ICVS050 50uL #14806/50mL Acq Time: 20 Mar 2012 10:46 am

Compound	Sample	Spike	Spike	Dup	Spike	Dup	RPD	QC	Limits
	Conc	Added	Res	Res	%Rec	%Rec	RPD	% Rec	
1,1-Dichloroethene	0.0	50	49	49	98	98	0	14	64-152
Benzene	0.0	50	55	49	109	98	10	11	77-132
Trichloroethene	0.0	50	52	48	104	97	7	14	78-138
Toluene	0.0	50	50	45	100	90	10	13	78-133
Chlorobenzene	0.0	50	49	46	99	93	6	13	78-137

- Fails Limit Check

3 Spike Recovery and RPD Summary Report - WATER

Method Path : C:\msdchem\1\METHODS\
Method File : K_VOW_EBMW.M
Title : VOCs; Method 8260/624 Aqueous; EnCon #1
Last Update : Thu Mar 22 12:33:47 2012
Response Via : Initial Calibration

Datafile Path: D:\DATA\2012\1203\120322\

-----Sample-----

File : K51024.D
Name : 12-1258-001 HRTG ZHE 10X Acq Time: 22 Mar 2012 3:05 pm

-----Spike-----

File : K51016.D
Name : 12-1258-001MS HRTG ZHE 10X 50uL #14806/50 Acq Time: 22 Mar 2012 12:53 pm

--Spike Duplicate--

File : K51018.D
Name : 12-1258-001MSD HRTG ZHE 10X 50uL #14806/5 Acq Time: 22 Mar 2012 1:26 pm

Compound	Sample	Spike	Spike	Dup	Spike	Dup	RPD	QC	Limits
	Conc	Added	Res	Res	%Rec	%Rec	RPD	% Rec	
1,1-Dichloroethene	0.0	50	58	57	116	115	1	14	64-152
Benzene	0.0	50	48	46	95	92	3	11	77-132
Trichloroethene	0.1	50	50	47	100	95	5	14	78-138
Toluene	10.7	50	58	57	95	93	2	13	78-133
Chlorobenzene	0.0	50	49	48	97	96	1	13	78-137

- Fails Limit Check

3 Spike Recovery and RPD Summary Report - WATER

Method Path : C:\msdchem\1\METHODS\
Method File : K_VOW_EBMW.M
Title : VOCs; Method 8260/624 Aqueous; EnCon #1
Last Update : Thu Mar 22 12:33:47 2012
Response Via : Initial Calibration

Datafile Path: D:\DATA\2012\1203\120322\

-----Sample-----

File : K51022.D
Name : VBLKW04 Acq Time: 22 Mar 2012 2:32 pm

-----Spike-----

File : K51015.D
Name : ICVS050 50uL #14806/50mL Acq Time: 22 Mar 2012 12:36 pm

--Spike Duplicate--

File : K51017.D
Name : ICVS050 50uL #14806/50mL Acq Time: 22 Mar 2012 1:09 pm

Compound	Sample	Spike	Spike	Dup	Spike	Dup	RPD	QC	Limits
	Conc	Added	Res	Res	%Rec	%Rec	RPD	% Rec	
1,1-Dichloroethene	0.0	50	53	56	106	113	6	14	64-152
Benzene	0.0	50	48	49	96	99	3	11	77-132
Trichloroethene	0.0	50	46	46	91	92	1	14	78-138
Toluene	0.0	50	46	46	92	93	0	13	78-133
Chlorobenzene	0.0	50	48	49	96	98	2	13	78-137

- Fails Limit Check

VOLATILE METHOD BLANK SUMMARY

Lab Name: FIRST Contract: MWHARZ VBLK01

Lab Code: FEL Case No.: BLACKW SAS No.: SDG No.:
Lab File ID: K50984.D Lab Sample ID: VBLKW04

Date Analyzed: 3/20/2012 Time Analyzed: 12:06

GC Column: ZB-624 ID: 0.32 (mm) Heated Purge: (Y/N) N

Instrument ID: GCMS K

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	ICVS050	ICVS050	K50977.D	10:14
02	G138-22MS	12-1176-003MS	K50978.D	10:30
03	ICVS050	ICVS050	K50979.D	10:46
04	G138-22MSD	12-1176-003MSD	K50980.D	11:02
05	G138-22	12-1176-003	K50986.D	12:38
06	TB01-22	12-1176-001	K50988.D	13:10
07	FB01-22	12-1176-002	K50990.D	13:42
08	FB02-22	12-1176-009	K50992.D	14:14
09	G126-22	12-1176-004	K50994.D	14:45
10	G117-22	12-1176-005	K50996.D	15:17
11	G118S-22	12-1176-006	K50998.D	15:49
12	G127-922	12-1176-008	K51000.D	16:21

COMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLK02

Lab Name: FIRST

Contract: MWHARZ

Lab Code: FEL

Case No.: BLACKW

SAS No.: _____

SDG No.: _____

Lab File ID: K51022.D

Lab Sample ID: VBLKW04

Date Analyzed: 3/22/2012

Time Analyzed: 14:32

GC Column: ZB-624 ID: 0.32 (mm)

Heated Purge: (Y/N) N

Instrument ID: GCMS K

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01 ICVS050	ICVS050	K51015.D	12:36
02 ICVS050	ICVS050	K51017.D	13:09
03 G127-22	12-1176-007	K51023.D	14:48

COMMENTS:

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: FIRST

Contract: MWHARZ

Lab Code: FEL

Case No.: BLACKW

SAS No.: _____

SDG No.: _____

Matrix: (soil/water)

WATER

Lab Sample ID: VBLKW04

Sample wt/vol:

5.0 (g/ml) ML

Lab File ID: K50984.D

Level: (low/med)

LOW

Date Received: 3/15/2012

% Moisture: not dec.

Date Analyzed: 3/20/2012

GC Column: ZB-624 ID: 0.32 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg)	UG/L	Q
74-87-3	Chloromethane		10	U
75-01-4	Vinyl Chloride		1	U
74-83-9	Bromomethane		1	U
75-00-3	Chloroethane		1	U
67-64-1	Acetone		5	U
75-35-4	1,1-Dichloroethene		1	U
75-09-2	Methylene chloride		1	U
75-15-0	Carbon disulfide		1	U
156-60-5	trans-1,2-Dichloroethene		1	U
156-59-2	cis-1,2-Dichloroethene		1	U
1634-04-4	Methyl-t-butylether (MTBE)		1	U
108-05-4	Vinyl Acetate		5	U
75-34-3	1,1-Dichloroethane		1	U
594-20-7	2,2-Dichloropropane		1	U
78-93-3	2-Butanone (MEK)		5	U
67-66-3	Chloroform		1	U
71-55-6	1,1,1-Trichloroethane		1	U
56-23-5	Carbon tetrachloride		1	U
563-58-6	1,1-Dichloropropene		1	U
107-06-2	1,2-Dichloroethane		1	U
71-43-2	Benzene		1	U
79-01-6	Trichloroethene		1	U
78-87-5	1,2-Dichloropropane		1	U
75-27-4	Bromodichloromethane		1	U
110-75-8	2-Chloroethyl vinyl ether		5	U
10061-01-5	cis-1,3-Dichloropropene		1	U
	Acrylonitrile		10	U
108-88-3	Toluene		1	U
10061-02-6	trans-1,3-Dichloropropene		1	U
	Bromochloromethane		1	U
	1,2-Dibromo-3-chloropropane		1	U
79-00-5	1,1,2-Trichloroethane		1	U
	1,2-Dibromoethane (EDB)		1	U
	Dibromomethane		1	U
	1,2-Dichlorobenzene		1	U
	1,4-Dichlorobenzene		1	U
591-78-6	2-Hexanone		1	U
	Iodomethane		1	U
127-18-4	Tetrachloroethene		1	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name:	FIRST	Contract:	MWHARZ
Lab Code:	FEL	Case No.:	BLACKW
Matrix: (soil/water)	WATER	Lab Sample ID:	VBLKW04
Sample wt/vol:	5.0	(g/ml)	ML
Level: (low/med)	LOW	Date Received:	3/15/2012
% Moisture: not dec.		Date Analyzed:	3/20/2012
GC Column:	ZB-624	ID:	0.32 (mm)
Soil Extract Volume:		Dilution Factor:	1.0
		Soil Aliquot Volume:	(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg)	UG/L	Q
124-48-1	1,1,2,2-Tetrachloroethane		1	U
	Chlorodibromomethane		1	U
	Trichlorofluoromethane		1	U
108-90-7	Chlorobenzene		1	U
100-41-4	Ethylbenzene		1	U
1330-20-7	m&p-Xylene		1	U
95-47-6	o-Xylene		1	U
100-42-5	Styrene		1	U
75-25-2	Bromoform		1	U
630-20-6	1,1,1,2-Tetrachloroethane		1	U
96-18-4	1,2,3-Trichloropropane		1	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK02

Lab Name:	FIRST	Contract:	MWHARZ
Lab Code:	FEL	Case No.:	BLACKW
Matrix: (soil/water)	WATER	SAS No.:	SDG No.:
Sample wt/vol:	5.0 (g/ml)	ML	Lab Sample ID: VBLKW04
Level: (low/med)	LOW	Lab File ID:	K51022.D
% Moisture: not dec.		Date Received:	3/15/2012
GC Column:	ZB-624	ID: 0.32 (mm)	Date Analyzed: 3/22/2012
Soil Extract Volume:	(uL)	Dilution Factor:	1.0
		Soil Aliquot Volume:	(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg)	UG/L	Q
74-87-3	Chloromethane		10	U
75-01-4	Vinyl Chloride		1	U
74-83-9	Bromomethane		1	U
75-00-3	Chloroethane		1	U
67-64-1	Acetone		5	U
75-35-4	1,1-Dichloroethene		1	U
75-09-2	Methylene chloride		1	U
75-15-0	Carbon disulfide		1	U
156-60-5	trans-1,2-Dichloroethene		1	U
156-59-2	cis-1,2-Dichloroethene		1	U
1634-04-4	Methyl-t-butylether (MTBE)		1	U
108-05-4	Vinyl Acetate		5	U
75-34-3	1,1-Dichloroethane		1	U
594-20-7	2,2-Dichloropropane		1	U
78-93-3	2-Butanone (MEK)		5	U
67-66-3	Chloroform		1	U
71-55-6	1,1,1-Trichloroethane		1	U
56-23-5	Carbon tetrachloride		1	U
563-58-6	1,1-Dichloropropene		1	U
107-06-2	1,2-Dichloroethane		1	U
71-43-2	Benzene		1	U
79-01-6	Trichloroethene		1	U
78-87-5	1,2-Dichloropropane		1	U
75-27-4	Bromodichloromethane		1	U
110-75-8	2-Chloroethyl vinyl ether		5	U
10061-01-5	cis-1,3-Dichloropropene		1	U
	Acrylonitrile		10	U
108-88-3	Toluene		1	U
10061-02-6	trans-1,3-Dichloropropene		1	U
	Bromoform		1	U
	1,2-Dibromo-3-chloropropane		1	U
79-00-5	1,1,2-Trichloroethane		1	U
	1,2-Dibromoethane (EDB)		1	U
	Dibromomethane		1	U
	1,2-Dichlorobenzene		1	U
	1,4-Dichlorobenzene		1	U
591-78-6	2-Hexanone		1	U
	Iodomethane		1	U
127-18-4	Tetrachloroethene		1	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK02

Lab Name:	FIRST	Contract:	MWHARZ	
Lab Code:	FEL	Case No.:	BLACKW	
Matrix: (soil/water)	WATER	Lab Sample ID:	VBLKW04	
Sample wt/vol:	5.0 (g/ml)	ML	Lab File ID:	K51022.D
Level: (low/med)	LOW	Date Received:	3/15/2012	
% Moisture: not dec.		Date Analyzed:	3/22/2012	
GC Column:	ZB-624	ID: 0.32 (mm)	Dilution Factor:	1.0
Soil Extract Volume:	(uL)	Soil Aliquot Volume:	(uL)	

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg)	UG/L	Q
124-48-1	1,1,2,2-Tetrachloroethane	1	U	
	Chlorodibromomethane	1	U	
	Trichlorofluoromethane	1	U	
108-90-7	Chlorobenzene	1	U	
100-41-4	Ethylbenzene	1	U	
1330-20-7	m&p-Xylene	1	U	
95-47-6	o-Xylene	1	U	
100-42-5	Styrene	1	U	
75-25-2	Bromoform	1	U	
630-20-6	1,1,1,2-Tetrachloroethane	1	U	
96-18-4	1,2,3-Trichloropropane	1	U	

Data Path : D:\DATA\2012\1203\120320\
Data File : K50984.D
Acq On : 20 Mar 2012 12:06 pm
Operator : PAM
Sample : VBLKW04
Misc : 5.0mLs Purged, ISTD #14873
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 21 08:36:22 2012
Quant Method : C:\msdchem\1\METHODS\K_VOW_EBMW.M
Quant Title : VOCs; Method 8260/624 Aqueous; EnCon #1
QLast Update : Mon Mar 19 15:49:18 2012
Response via : Initial Calibration

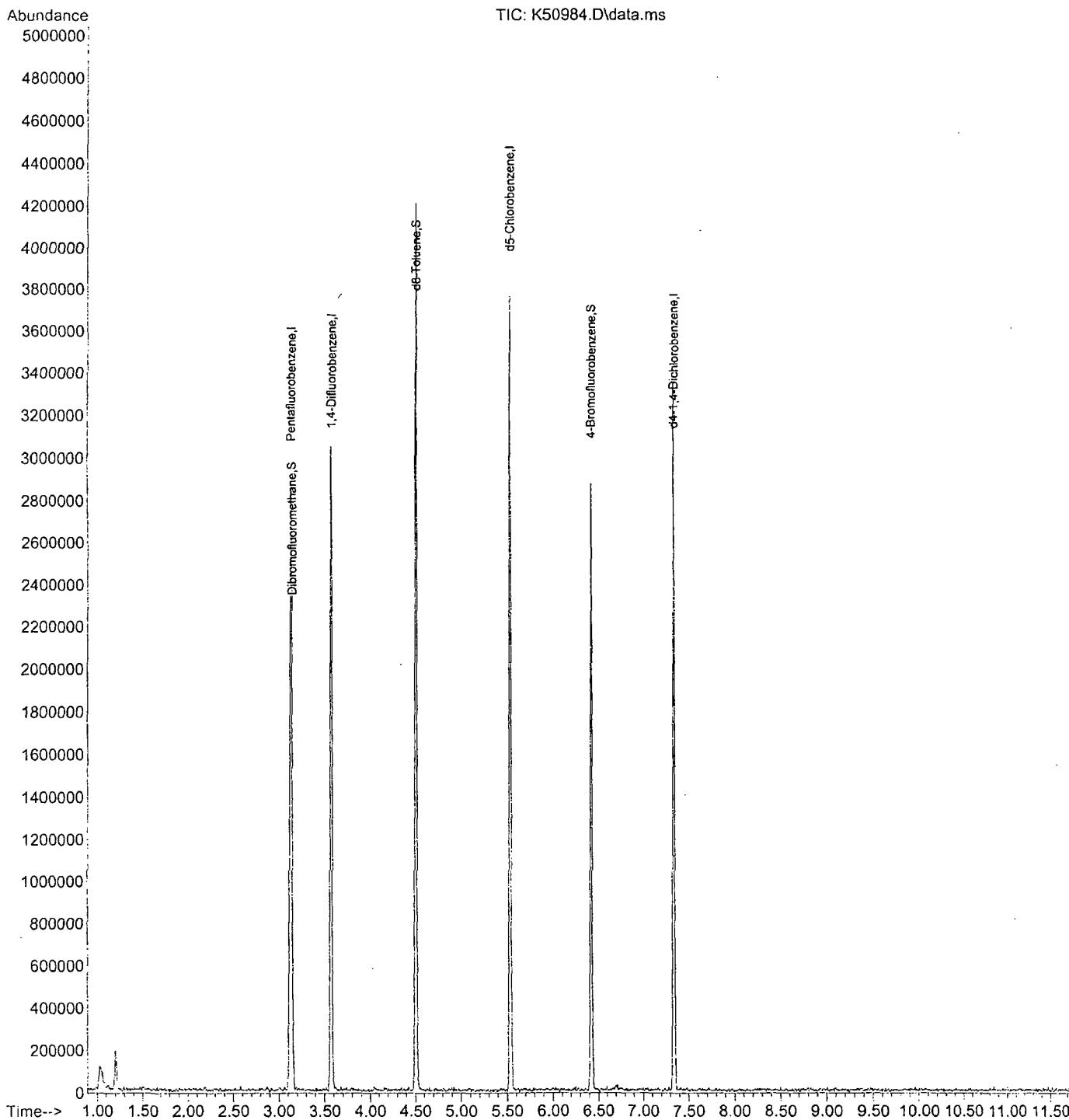
Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)
<hr/>						
Internal Standards						
1) Pentafluorobenzene	3.125	168	1046483	50.00	ug/L	0.00
36) 1,4-Difluorobenzene	3.571	114	1686349	50.00	ug/L	0.00
54) d5-Chlorobenzene	5.532	117	1463591	50.00	ug/L	0.00
70) d4-1,4-Dichlorobenzene	7.341	152	678070	50.00	ug/L	# 0.00
<hr/>						
System Monitoring Compounds						
31) Dibromofluoromethane	3.136	111	611012	47.55	ug/L	-0.01
Spiked Amount 50.000	Range 75 - 128		Recovery	=	95.10%	
52) d8-Toluene	4.504	98	1888409	49.98	ug/L	0.00
Spiked Amount 50.000	Range 90 - 112		Recovery	=	99.96%	
68) 4-Bromofluorobenzene	6.423	95	791943	46.16	ug/L	0.00
Spiked Amount 50.000	Range 72 - 120		Recovery	=	92.32%	
<hr/>						
Target Compounds					Qvalue	
<hr/>						

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : D:\DATA\2012\1203\120320\
Data File : K50984.D
Acq On : 20 Mar 2012 12:06 pm
Operator : PAM
Sample : VBLKW04
Misc : 5.0mLs Purged, ISTD #14873
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 21 08:36:22 2012
Quant Method : C:\msdchem\1\METHODS\K_VOW_EBMW.M
Quant Title : VOCs; Method 8260/624 Aqueous; EnCon #1
QLast Update : Mon Mar 19 15:49:18 2012
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data Path : D:\DATA\2012\1203\120322\
Data File : K51022.D
Acq On : 22 Mar 2012 2:32 pm
Operator : PAM
Sample : VBLKW04
Misc : 5.0mLs Purged, ISTD #14873
ALS Vial : 22 Sample Multiplier: 1

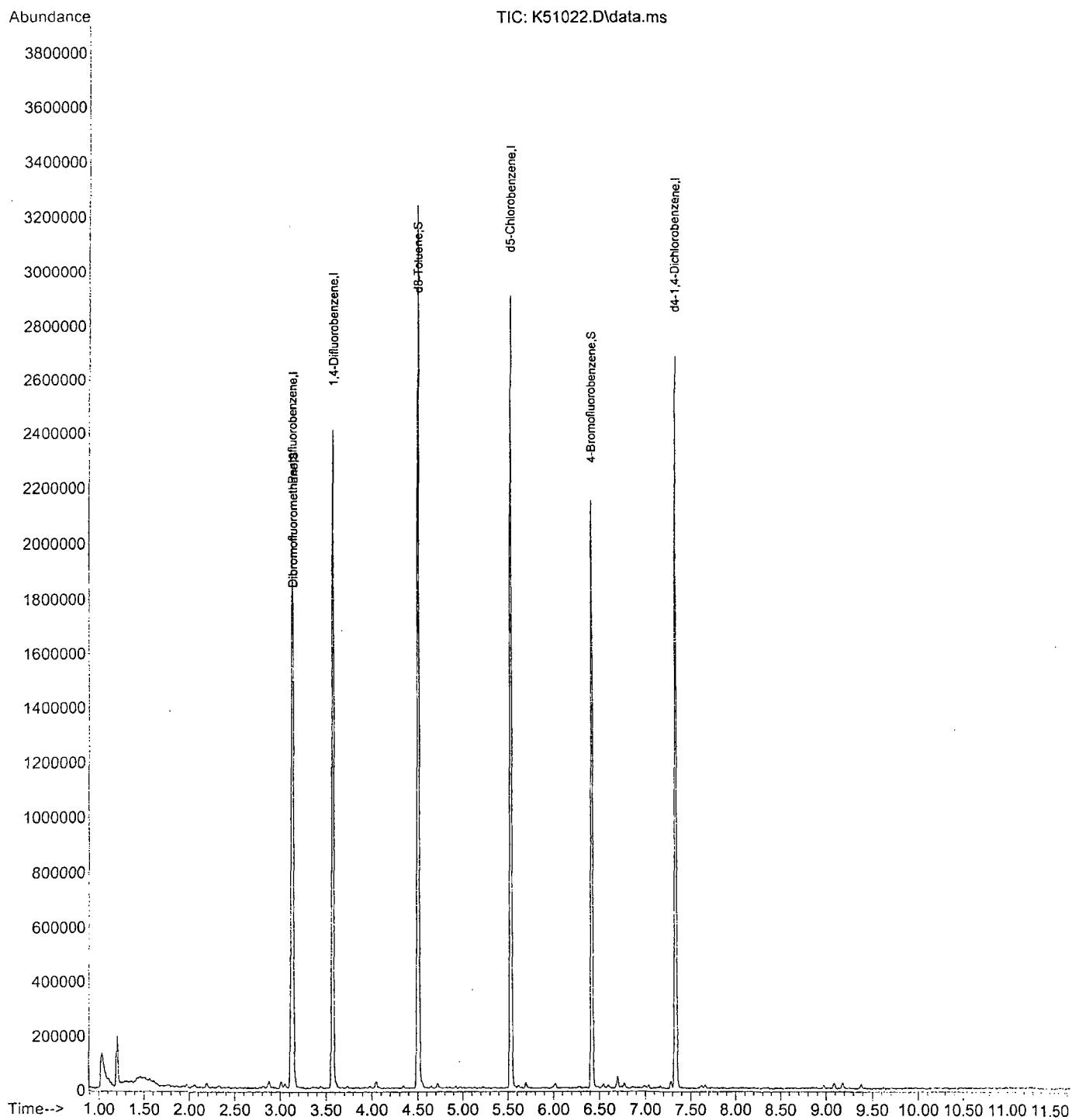
Quant Time: Mar 22 14:46:29 2012
Quant Method : C:\msdchem\1\METHODS\K_VOW_EBMW.M
Quant Title : VOCs; Method 8260/624 Aqueous; EnCon #1
QLast Update : Thu Mar 22 12:33:47 2012
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)
<hr/>						
Internal Standards						
1) Pentafluorobenzene	3.126	168	718816	50.00	ug/L	0.00
36) 1,4-Difluorobenzene	3.571	114	1222203	50.00	ug/L	0.00
54) d5-Chlorobenzene	5.532	117	1072005	50.00	ug/L	0.00
70) d4-1,4-Dichlorobenzene	7.336	152	511926	50.00	ug/L	# 0.00
<hr/>						
System Monitoring Compounds						
31) Dibromofluoromethane	3.136	111	430961	49.50	ug/L	0.00
Spiked Amount 50.000	Range 75 - 128		Recovery =	99.00%		
52) d8-Toluene	4.504	98	1357122	52.61	ug/L	0.00
Spiked Amount 50.000	Range 90 - 112		Recovery =	105.22%		
68) 4-Bromofluorobenzene	6.418	95	639068	48.37	ug/L	0.00
Spiked Amount 50.000	Range 72 - 120		Recovery =	96.74%		
<hr/>						
Target Compounds					Qvalue	
<hr/>						

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : D:\DATA\2012\1203\120322\
Data File : K51022.D
Acq On : 22 Mar 2012 2:32 pm
Operator : PAM
Sample : VBLKW04
Misc : 5.0mLs Purged, ISTD #14873
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Mar 22 14:46:29 2012
Quant Method : C:\msdchem\1\METHODS\K_VOW_EBMW.M
Quant Title : VOCs; Method 8260/624 Aqueous; EnCon #1
QLast Update : Thu Mar 22 12:33:47 2012
Response via : Initial Calibration



5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: FIRST Contract: MWHARZ
 Lab Code: FEL Case No.: BLACKW SAS No.: SDG No.:
 Lab File ID: K50974.D BFB Injection Date: 3/20/2012
 Instrument ID: GCMS K BFB Injection Time: 9:27
 GC Column: ZB-624 ID: 0.32 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	21.2
75	30.0 - 66.0% of mass 95	50.8
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.2
173	Less than 2.0% of mass 174	1.4 (2.0)1
174	50.0 - 120.0% of mass 95	70.2
175	4.0 - 9.0% of mass 174	4.8 (6.8)1
176	93.0 - 101.0% of mass 174	67.0 (95.4)1
177	5.0 - 9.0% of mass 176	4.8 (7.2)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01 VSTD050	VSTD050	K50975.D	3/20/2012	9:42
02 ICVS050	ICVS050	K50977.D	3/20/2012	10:14
03 G138-22MS	12-1176-003MS	K50978.D	3/20/2012	10:30
04 ICVS050	ICVS050	K50979.D	3/20/2012	10:46
05 G138-22MSD	12-1176-003MSD	K50980.D	3/20/2012	11:02
06 VBLK01	VBLKW04	K50984.D	3/20/2012	12:06
07 G138-22	12-1176-003	K50986.D	3/20/2012	12:38
08 TB01-22	12-1176-001	K50988.D	3/20/2012	13:10
09 FB01-22	12-1176-002	K50990.D	3/20/2012	13:42
10 FB02-22	12-1176-009	K50992.D	3/20/2012	14:14
11 G126-22	12-1176-004	K50994.D	3/20/2012	14:45
12 G117-22	12-1176-005	K50996.D	3/20/2012	15:17
13 G118S-22	12-1176-006	K50998.D	3/20/2012	15:49
14 G127-922	12-1176-008	K51000.D	3/20/2012	16:21

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: FIRST Contract: MWHARZ
 Lab Code: FEL Case No.: BLACKW SAS No.: SDG No.:
 Lab File ID: K51006.D BFB Injection Date: 3/22/2012
 Instrument ID: GCMS K BFB Injection Time: 9:59
 GC Column: ZB-624 ID: 0.32 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	23.9
75	30.0 - 66.0% of mass 95	48.8
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	8.2
173	Less than 2.0% of mass 174	0.7 (1.2)1
174	50.0 - 120.0% of mass 95	55.8
175	4.0 - 9.0% of mass 174	4.5 (8.1)1
176	93.0 - 101.0% of mass 174	53.5 (95.9)1
177	5.0 - 9.0% of mass 176	3.7 (6.9)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01 VSTD050	VSTD050	K51010.D	3/22/2012	11:14
02 ICVS050	ICVS050	K51015.D	3/22/2012	12:36
03 ICVS050	ICVS050	K51017.D	3/22/2012	13:09
04 VBLK02	VBLKW04	K51022.D	3/22/2012	14:32
05 G127-22	12-1176-007	K51023.D	3/22/2012	14:48

6 Response Factor Report GCMS K

Method Path : C:\msdchem\1\METHODS\
 Method File : K_VOW_EBMW.M
 Title : VOCs; Method 8260/624 Aqueous; EnCon #1
 Last Update : Mon Mar 19 15:49:18 2012
 Response Via : Initial Calibration

Calibration Files

200 =K50931.D 100 =K50932.D 50 =K50933.D 20 =K50934.D 10 =K50935.D 5 =K50936.D

	Compound	200	100	50	20	10	5	Avg	%RSD
<hr/>									
1) I	Pentafluorobenzene			-----ISTD-----					
2) T	Dichlorodifluo...	1.013	0.960	1.321	0.944	1.232	0.953	1.071	15.29
3) P	Chloromethane	1.058	0.888	1.400	0.936	1.333	0.969	1.097	19.76
4) C	Vinyl chloride	0.972	0.931	1.240	0.916	1.225	0.944	1.038	14.61
5) T	Bromomethane	0.642	0.477	0.661	0.476	0.863	0.644	0.627	22.86
6) T	Chloroethane	0.554	0.548	0.645	0.544	0.636	0.609	0.589	7.86
7) T	Trichlorofluor...	1.089	1.165	1.269	1.228	1.206	1.257	1.202	5.55
8) T	Ethyl ether	0.494	0.631	0.551	0.615	0.574	0.611	0.579	8.84
9) T	Acrolein	0.007	0.005	0.010	0.002	0.008	0.005	0.006	44.80
10) T	Acetone	0.178	0.286	0.195	0.306	0.191	0.147	0.217	29.32
11) CM	1,1-Dichloroet...	0.604	0.633	0.649	0.625	0.510	0.550	0.595	9.10
12) T	Iodomethane	0.415	0.761	0.491	0.648	0.595	0.490	0.567	22.28
13) T	Carbon disulfide	1.221	1.366	1.525	1.692	1.616	1.732	1.525	12.99
14) T	Allyl chloride	0.400	0.423	0.428	0.348	0.409	0.322	0.388	11.14
15) T	Methylene chlo...	0.599	0.666	0.675	0.752	0.656	0.721	0.678	7.86
16) T	trans-1,2-Dich...	0.632	0.686	0.699	0.689	0.615	0.683	0.667	5.22
17) T	cis-1,2-Dichlo...	0.714	0.746	0.761	0.783	0.792	0.735	0.755	3.92
18) T	Methyl-t-butyl...	1.212	1.501	1.544	1.784	1.562	1.779	1.564	13.49
19) T	n-Hexane	1.231	1.154	1.425	1.260	1.086	1.319	1.246	9.64
20) T	Acrylonitrile	0.197	0.272	0.250	0.326	0.233	0.339	0.270	20.31
21) T	Vinyl acetate	0.928	1.174	1.222	1.190	1.202	1.190	1.151	9.58
22) P	1,1-Dichloroet...	1.253	1.284	1.555	1.524	1.626	1.407	1.441	10.54
23) T	2,2-Dichloropr...	1.081	1.106	1.202	1.139	1.117	1.109	1.126	3.71
24) T	2-Butanone (MEK)	0.399	0.532	0.451	0.700	0.561	0.632	0.546	20.48
25) T	Propionitrile	0.082	0.109	0.089	0.107	0.094	0.057	0.089	21.22
26) T	Methyl acrylate	0.521	0.669	0.645	0.610	0.714	0.571	0.622	11.18
27) T	Methacrylonitrile	0.431	0.628	0.513	0.617	0.512	0.488	0.531	14.38
28) T	Bromochloromet...	0.428	0.503	0.476	0.504	0.440	0.540	0.482	8.81
29) T	Tetrahydrofura...	0.049	0.063	0.041	0.065	0.051	0.048	0.053	17.47
30) C	Chloroform	1.097	1.176	1.384	1.290	1.465	1.307	1.286	10.41
31) S	Dibromoefluorom...	0.618	0.639	0.616	0.606	0.639	0.565	0.614	4.47
32) T	1,1,1-Trichlor...	1.194	1.152	1.352	1.216	1.237	1.306	1.243	5.95
33) T	Butyl chloride	1.456	1.538	1.965	1.936	2.032	1.600	1.755	14.29
34) T	Carbon tetrach...	1.039	1.035	1.198	1.075	1.108	0.958	1.069	7.55
35) T	1,1-Dichloropr...	0.976	0.969	1.153	1.068	1.093	1.051	1.052	6.70
36) I	1,4-Difluorobenzene			-----ISTD-----					
37) T	1,2-Dichloroet...	0.499	0.649	0.637	0.782	0.697	0.730	0.666	14.68
38) M	Benzene	0.997	1.204	1.572	1.697	1.895	1.654	1.503	22.36
39) T	n-Heptane	0.495	0.596	0.612	0.680	0.572	0.570	0.587	10.31
40) M	Trichloroethene	0.407	0.455	0.504	0.506	0.498	0.488	0.476	8.18
41) T	Methyl methacr...	0.196	0.266	0.216	0.250	0.162	0.274	0.227	19.14
42) C	1,2-Dichloropr...	0.401	0.462	0.485	0.505	0.428	0.467	0.458	8.29
43) T	Bromodichlorom...	0.458	0.563	0.611	0.666	0.633	0.656	0.598	12.97
44) T	Dibromomethane	0.174	0.243	0.199	0.265	0.230	0.264	0.229	15.86
45) T	2-Nitropropane	0.204	0.323	0.214	0.357	0.242	0.289	0.271	22.64
46) T	2-Chloroethyl ...	0.139	0.286	0.151	0.295	0.135	0.241	0.208	36.00
47) T	cis-1,3-Dichlo...	0.437	0.607	0.528	0.721	0.596	0.713	0.600	18.13
48) T	trans-1,3-Dich...	0.440	0.614	0.538	0.709	0.560	0.716	0.596	17.82
49) T	4-Methyl-2-pen...	0.241	0.352	0.283	0.391	0.207	0.361	0.306	23.98
50) CM	Toluene	0.972	1.249	1.584	1.788	1.674	1.804	1.512	22.01
51) T	1,1,2-Trichlor...	0.294	0.346	0.335	0.388	0.297	0.334	0.332	10.36
52) S	d8-Toluene	1.079	1.124	1.099	1.193	1.082	1.144	1.120	3.89
53) T	1,4-Dichloro-2...	0.124	0.174	0.141	0.165	0.130	0.143	0.146	13.55
54) I	d5-Chlorobenzene			-----ISTD-----					

Response Factor Report GCMS K

Method Path : C:\msdchem\1\METHODS\

Method File : K_VOW_EBMW.M

55)	T	Ethyl methacry...	0.410	0.545	0.483	0.623	0.453	0.493	0.501	14.89
56)	T	Tetrachloroethene	0.365	0.384	0.386	0.413	0.294	0.396	0.373	11.14
57)	T	2-Hexanone	0.215	0.305	0.239	0.301	0.215	0.290	0.261	16.40
58)	T	1,3-Dichloropr...	0.526	0.658	0.698	0.769	0.660	0.698	0.668	12.04
59)	T	Chlorodibromom...	0.458	0.527	0.564	0.604	0.554	0.512	0.536	9.32
60)	T	1,2-Dibromoeth...	0.279	0.422	0.326	0.416	0.285	0.457	0.364	21.17
61)	MP	Chlorobenzene	0.881	1.098	1.289	1.326	1.440	1.439	1.246	17.53
62)	C	Ethylbenzene	0.592	0.679	0.753	0.728	0.768	0.674	0.699	9.25
63)	T	m&p-Xylene	0.401	0.658	0.868	0.849	0.963	0.891	0.772	26.95
64)	T	o-Xylene	1.032	1.339	1.780	1.783	1.931	1.655	1.587	21.25
65)	T	Styrene	0.914	1.176	1.498	1.477	1.513	1.441	1.337	18.07
66)	P	Bromoform	0.271	0.302	0.298	0.310	0.253	0.315	0.292	8.29
67)	T	Isopropylbenze...	1.109	1.469	1.994	2.002	2.234	1.999	1.801	23.45
68)	S	4-Bromofluorob...	0.574	0.586	0.615	0.556	0.640	0.545	0.586	6.09
69)	T	1,1,1,2-Tetra...	0.441	0.510	0.517	0.536	0.342	0.470	0.469	15.20
70)	I	d4-1,4-Dichloroben...								ISTD
71)	P	1,1,2,2-Tetra...	0.712	0.822	0.766	0.955	0.734	0.965	0.826	13.38
72)	T	1,2,3-Trichlor...	0.272	0.315	0.278	0.314	0.266	0.339	0.297	9.91
73)	T	n-Propylbenzene	2.122	2.821	3.954	4.390	4.384	4.387	3.676	26.48
74)	T	Bromobenzene	1.191	1.373	1.517	1.625	1.602	1.776	1.514	13.63
75)	T	o-Chlorotoluene	1.689	2.119	2.752	2.839	2.749	2.952	2.517	19.83
76)	T	p-Chlorotoluene	1.718	2.186	2.726	2.912	3.018	2.754	2.552	19.57
77)	T	1,2,4-Trimethyl...	1.794	2.292	2.862	3.179	3.001	3.248	2.729	20.91
78)	T	tert-Butylbenzene	1.734	2.097	2.671	2.605	2.624	2.737	2.411	16.74
79)	T	Pentachloroethane	0.596	0.616	0.629	0.690	0.542	0.604	0.613	7.87
80)	T	1,3,5-Trimethyl...	1.795	2.293	2.970	3.336	3.208	3.359	2.827	22.69
81)	T	sec-Butylbenzene	2.009	2.567	3.593	3.777	4.128	4.041	3.352	25.78
82)	T	p-Isopropyltol...	1.815	2.319	3.102	3.295	3.296	3.224	2.842	22.00
83)	T	1,3-Dichlorobe...	1.266	1.463	1.838	1.712	1.648	1.762	1.615	13.20
84)	T	1,4-Dichlorobe...	1.266	1.456	1.798	1.896	1.829	2.039	1.714	17.03
85)	T	1,2-Dichlorobe...	1.213	1.387	1.718	1.650	1.765	1.777	1.585	14.63
86)	T	n-Butylbenzene	1.629	2.004	2.614	2.621	2.820	2.591	2.380	19.31
87)	T	Hexachloroethane	0.380	0.367	0.410	0.395	0.310	0.335	0.366	10.26
88)	T	1,2-Dibromo-3...	0.133	0.145	0.153	0.156	0.154	0.152	0.149	5.75
89)	T	1,2,4-Trichlor...	0.557	0.595	0.799	0.628	0.802	0.440	0.637	22.27
90)	T	Hexachlorobuta...	0.243	0.250	0.355	0.296	0.490	0.361	0.332	27.62
91)	T	Naphthalene	1.031	1.175	1.763	1.696	1.835	0.926	1.404	28.84
92)	T	1,2,3-Trichlor...	0.371	0.374	0.645	0.573	0.670	0.428	0.510	26.64

(#= Out of Range)

Compound List Report GCMS K

Method Path : C:\msdchem\1\METHODS\
 Method File : K_VOW_EBMW.M
 Title : VOCs; Method 8260/624 Aqueous; EnCon #1
 Last Update : Mon Mar 19 15:49:18 2012
 Response Via : Initial Calibration

Total Cpnds : 92

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	Pentafluorobenzene	168	3.131	1.000	A	2	A	L
2	T	Dichlorodifluoromethane	85	1.149	0.367	L	2	A	B
3	P	Chloromethane	50	1.254	0.401	L	1	A	B
4	C	Vinyl chloride	62	1.311	0.419	A	1	A	B
5	T	Bromomethane	94	1.490	0.476	L	1	A	B
6	T	Chloroethane	64	1.537	0.491	A	1	A	B
7	T	Trichlorofluoromethane	101	1.668	0.533	A	2	A	B
8	T	Ethyl ether	59	1.810	0.578	A	2	A	B
9	T	Acrolein	56	1.904	0.608	L	1	A	B
10	T	Acetone	43	1.977	0.631	L	1	A	B
11	CM	1,1-Dichloroethene	96	1.946	0.622	A	2	A	B
12	T	Iodomethane	142	2.040	0.652	Q	2	A	B
13	T	Carbon disulfide	76	2.072	0.662	A	0	A	B
14	T	Allyl chloride	76	2.135	0.682	A	3	A	B
15	T	Methylene chloride	84	2.208	0.705	A	2	A	B
16	T	trans-1,2-Dichloroethene	96	2.334	0.745	A	1	A	B
17	T	cis-1,2-Dichloroethene	96	2.879	0.920	A	2	A	B
18	T	Methyl-t-butylether (MTBE)	73	2.318	0.740	A	1	A	B
19	T	n-Hexane	57	2.444	0.781	A	2	A	B
20	T	Acrylonitrile	53	2.339	0.747	Q	1	A	B
21	T	Vinyl acetate	43	2.565	0.819	A	1	A	B
22	P	1,1-Dichloroethane	63	2.565	0.819	A	1	A	B
23	T	2,2-Dichloropropane	77	2.869	0.916	A	1	A	B
24	T	2-Butanone (MEK)	43	2.884	0.921	Q	1	A	B
25	T	Propionitrile	54	2.942	0.940	L	1	A	B
26	T	Methyl acrylate	55	2.916	0.931	A	1	A	B
27	T	Methacrylonitrile	41	3.005	0.960	A	1	A	B
28	T	Bromochloromethane	130	3.021	0.965	A	2	A	B
29	T	Tetrahydrofuran (THF)	71	3.031	0.968	L	1	A	B
30	C	Chloroform	83	3.052	0.975	A	1	A	B
31	S	Dibromofluoromethane	111	3.147	1.005	A	2	A	B
32	T	1,1,1-Trichloroethane	97	3.147	1.005	A	2	A	B
33	T	Butyl chloride	56	3.204	1.023	A	1	A	B
34	T	Carbon tetrachloride	119	3.241	1.035	A	2	A	B
35	T	1,1-Dichloropropene	75	3.236	1.034	A	2	A	B
36	I	1,4-Difluorobenzene	114	3.576	1.000	A	0	A	L
37	T	1,2-Dichloroethane	62	3.393	0.949	A	1	A	B
38	M	Benzene	78	3.367	0.942	Q	0	A	B
39	T	n-Heptane	43	3.456	0.966	A	2	A	B
40	M	Trichloroethene	130	3.744	1.047	A	2	A	B
41	T	Methyl methacrylate	69	3.928	1.098	Q	2	A	B
42	C	1,2-Dichloropropane	63	3.896	1.089	A	1	A	B
43	T	Bromodichloromethane	83	4.069	1.138	A	1	A	B
44	T	Dibromomethane	174	3.980	1.113	Q	1	A	B
45	T	2-Nitropropane	43	4.221	1.180	Q	1	A	B
46	T	2-Chloroethyl vinyl ether	63	4.232	1.183	Q	2	A	B
47	T	cis-1,3-Dichloropropene	75	4.342	1.214	Q	1	A	B
48	T	trans-1,3-Dichloropropene	75	4.719	1.320	Q	1	A	B
49	T	4-Methyl-2-pentanone (MIBK)	43	4.426	1.238	Q	3	A	B
50	CM	Toluene	91	4.552	1.273	Q	1	A	B
51	T	1,1,2-Trichloroethane	97	4.856	1.358	A	1	A	B
52	S	d8-Toluene	98	4.504	1.260	A	1	A	B
53	T	1,4-Dichloro-2-butene	53	6.591	1.843	A	2	A	B

54	I	d5-Chlorobenzene	117	5.532	1.000	A	1	A	L
55	T	Ethyl methacrylate	69	4.740	0.857	A	2	A	B
56	T	Tetrachloroethene	164	4.924	0.890	A	1	A	B
57	T	2-Hexanone	43	4.997	0.903	L	2	A	B
58	T	1,3-Dichloropropane	76	4.971	0.899	A	1	A	B
59	T	Chlorodibromomethane	129	5.139	0.929	A	1	A	B
60	T	1,2-Dibromoethane (EDB)	107	5.223	0.944	Q	2	A	B
61	MP	Chlorobenzene	112	5.558	1.005	Q	1	A	B
62	C	Ethylbenzene	106	5.611	1.014	A	1	A	B
63	T	m&p-Xylene	106	5.700	1.030	Q	1	A	B
64	T	o-Xylene	91	6.004	1.085	Q	1	A	B
65	T	Styrene	104	6.020	1.088	Q	1	A	B
66	P	Bromoform	173	6.198	1.120	A	2	A	B
67	T	Isopropylbenzene (Cumene)	105	6.277	1.135	Q	1	A	B
68	S	4-Bromofluorobenzene	95	6.418	1.160	A	1	A	B
69	T	1,1,1,2-Tetrachloroethane	131	5.616	1.015	L	2	A	B
70	I	d4-1,4-Dichlorobenzene	152	7.336	1.000	A	3	A	L
71	P	1,1,2,2-Tetrachloroethane	83	6.555	0.894	A	2	A	B
72	T	1,2,3-Trichloropropane	110	6.591	0.898	A	0	A	B
73	T	n-Propylbenzene	91	6.596	0.899	Q	1	A	B
74	T	Bromobenzene	77	6.544	0.892	A	2	A	B
75	T	o-Chlorotoluene	91	6.686	0.911	Q	1	A	B
76	T	p-Chlorotoluene	91	6.769	0.923	Q	1	A	B
77	T	1,2,4-Trimethylbenzene	105	6.733	0.918	Q	2	A	B
78	T	tert-Butylbenzene	119	6.990	0.953	Q	2	A	B
79	T	Pentachloroethane	167	7.037	0.959	A	0	A	B
80	T	1,3,5-Trimethylbenzene	105	7.037	0.959	Q	1	A	B
81	T	sec-Butylbenzene	105	7.168	0.977	Q	2	A	B
82	T	p-Isopropyltoluene	119	7.283	0.993	Q	2	A	B
83	T	1,3-Dichlorobenzene	146	7.283	0.993	A	2	A	B
84	T	1,4-Dichlorobenzene	146	7.357	1.003	Q	2	A	B
85	T	1,2-Dichlorobenzene	146	7.661	1.044	A	2	A	B
86	T	n-Butylbenzene	91	7.614	1.038	Q	2	A	B
87	T	Hexachloroethane	201	7.850	1.070	A	2	A	B
88	T	1,2-Dibromo-3-chloropropane	157	8.321	1.134	A	2	A	B
89	T	1,2,4-Trichlorobenzene	180	8.977	1.224	L	2	A	B
90	T	Hexachlorobutadiene	225	9.092	1.239	Q	2	A	B
91	T	Naphthalene	128	9.181	1.251	Q	0	A	B
92	T	1,2,3-Trichlorobenzene	180	9.380	1.279	Q	2	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin

#Qual = number of qualifiers

A/H = Area or Height

ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

6 Response Factor Report GCMS K

Method Path : C:\msdchem\1\METHODS\
 Method File : K_VOW_EBMW.M
 Title : VOCs; Method 8260/624 Aqueous; EnCon #1
 Last Update : Thu Mar 22 12:33:47 2012
 Response Via : Initial Calibration

Calibration Files

200 =K51008.D 100 =K51009.D 50 =K51010.D 20 =K51011.D 10 =K51012.D 5 =K51013.D

	Compound	200	100	50	20	10	5	Avg	%RSD
<hr/>									
1) I	Pentafluorobenzene			-----ISTD-----					
2) T	Dichlorodifluoromethane	0.179	0.234	0.188	0.252	0.174	0.262	0.215	18.01
3) P	Chloromethane	0.542	0.801	0.592	0.946	0.605	1.027	0.752	27.05
4) C	Vinyl chloride	0.524	0.752	0.626	0.891	0.642	0.880	0.719	20.54
5) T	Bromomethane	0.190	0.383	0.232	0.409	0.265	0.483	0.327	35.08
6) T	Chloroethane	0.224	0.469	0.397	0.551	0.437	0.607	0.447	29.87
7) T	Trichlorofluoromethane	0.620	0.838	0.900	0.925	0.927	0.972	0.863	14.74
8) T	Ethyl ether	0.521	0.544	0.688	0.628	0.749	0.718	0.641	14.60
9) T	Acrolein	0.012	0.012	0.018	0.018	0.017	0.025	0.017	29.49
10) T	Acetone	0.281	0.212	0.326	0.494	0.419	0.606	0.390	37.38
11) CM	1,1-Dichloroethane	0.433	0.521	0.560	0.514	0.554	0.504	0.514	8.86
12) T	Iodomethane	0.461	0.283	0.478	0.407	0.520	0.617	0.461	24.31
13) T	Carbon disulfide	0.813	1.084	1.258	1.261	1.583	1.468	1.245	22.07
14) T	Allyl chloride	0.348	0.386	0.393	0.395	0.407	0.410	0.390	5.80
15) T	Methylene chloride	0.533	0.627	0.695	0.694	0.822	0.860	0.705	17.22
16) T	trans-1,2-Dichloroethane	0.516	0.599	0.676	0.623	0.729	0.706	0.641	12.25
17) T	cis-1,2-Dichloroethane	0.592	0.712	0.773	0.784	0.880	0.840	0.764	13.35
18) T	Methyl-t-butyl ether	1.100	1.463	1.792	1.863	2.170	2.130	1.753	23.39
19) T	n-Hexane	0.787	1.213	1.113	1.291	1.234	1.259	1.150	16.31
20) T	Acrylonitrile	0.232	0.259	0.386	0.457	0.476	0.529	0.390	31.07
21) T	Vinyl acetate	0.968	1.200	1.467	1.452	1.708	1.666	1.410	20.03
22) P	1,1-Dichloroethane	0.908	1.338	1.366	1.548	1.531	1.629	1.387	18.74
23) T	2,2-Dichloropropane	0.770	0.987	0.998	1.064	1.044	1.063	0.988	11.27
24) T	2-Butanone (MEK)	0.486	0.430	0.552	0.837	0.815	1.256	0.729	42.37
25) T	Propionitrile	0.161	0.126	0.162	0.230	0.174	0.235	0.181	23.75
26) T	Methyl acrylate	0.697	0.731	0.938	1.085	1.020	1.113	0.931	19.19
27) T	Methacrylonitrile	0.667	0.618	0.784	0.698	0.668	0.737	0.695	8.41
28) T	Bromoform	0.388	0.430	0.483	0.447	0.507	0.494	0.458	9.85
29) T	Tetrahydrofuran	0.096	0.077	0.103	0.139	0.115	0.134	0.111	21.18
30) C	Chloroform	0.815	1.154	1.181	1.354	1.304	1.391	1.200	17.55
31) S	Dibromofluoromethane	0.562	0.606	0.574	0.640	0.587	0.665	0.606	6.58
32) T	1,1,1-Trichloroethane	0.772	1.096	1.052	1.182	1.108	1.304	1.086	16.31
33) T	Butyl chloride	1.030	1.623	1.666	2.059	1.897	2.165	1.740	23.42
34) T	Carbon tetrachloride	0.680	0.926	0.889	0.972	0.946	1.043	0.910	13.59
35) T	1,1-Dichloropropane	0.720	0.985	0.998	1.122	1.099	1.263	1.031	17.71
36) I	1,4-Difluorobenzene			-----ISTD-----					
37) T	1,2-Dichloroethane	0.438	0.451	0.611	0.517	0.649	0.552	0.536	15.79
38) M	Benzene	0.777	1.222	1.447	1.714	1.849	1.927	1.489	29.29
39) T	n-Heptane	0.495	0.564	0.726	0.592	0.749	0.608	0.622	15.65
40) M	Trichloroethene	0.363	0.405	0.477	0.434	0.518	0.489	0.448	12.90
41) T	Methyl methacrylate	0.300	0.273	0.376	0.306	0.400	0.303	0.326	15.21
42) C	1,2-Dichloropropane	0.402	0.474	0.551	0.535	0.562	0.598	0.520	13.61
43) T	Bromodichloromethane	0.422	0.469	0.563	0.536	0.576	0.592	0.526	12.72
44) T	Dibromomethane	0.226	0.185	0.260	0.201	0.260	0.209	0.224	13.98
45) T	2-Nitropropane	0.379	0.234	0.457	0.306	0.449	0.279	0.350	26.27
46) T	2-Chloroethyl ethyl ether	0.296	0.142	0.378	0.179	0.381	0.214	0.265	38.54
47) T	cis-1,3-Dichloroethane	0.471	0.480	0.693	0.546	0.771	0.599	0.593	20.13
48) T	trans-1,3-Dichloroethane	0.458	0.459	0.665	0.520	0.738	0.581	0.570	19.95
49) T	4-Methyl-2-pentanone	0.435	0.369	0.589	0.415	0.620	0.482	0.485	20.62
50) CM	Toluene	0.770	1.151	1.469	1.510	1.927	1.685	1.419	28.78
51) T	1,1,2-Trichloroethane	0.319	0.338	0.400	0.362	0.415	0.387	0.370	10.10
52) S	d8-Toluene	1.115	1.045	1.093	0.983	1.098	0.999	1.055	5.25
53) T	1,4-Dichloro-2-propanone	0.176	0.124	0.181	0.126	0.162	0.151	0.153	16.01
54) I	d5-Chlorobenzene			-----ISTD-----					

Response Factor Report GCMS K

Method Path : C:\msdchem\1\METHODS\

Method File : K_VOW_EBMW.M

55)	T	Ethyl methacry...	0.507	0.515	0.749	0.596	0.815	0.679	0.643	19.54
56)	T	Tetrachloroethene	0.334	0.388	0.465	0.475	0.485	0.476	0.437	14.16
57)	T	2-Hexanone	0.381	0.333	0.489	0.483	0.522	0.460	0.445	16.23
58)	T	1,3-Dichloropr...	0.528	0.634	0.783	0.777	0.881	0.857	0.743	18.34
59)	T	Chlorodibromom...	0.388	0.456	0.497	0.513	0.516	0.504	0.479	10.38
60)	T	1,2-Dibromoeth...	0.367	0.302	0.468	0.364	0.498	0.409	0.401	18.08
61)	MP	Chlorobenzene	0.698	0.995	1.176	1.331	1.461	1.490	1.192	25.54
62)	C	Ethylbenzene	0.496	0.651	0.728	0.796	0.830	0.801	0.717	17.60
63)	T	m&p-Xylene	0.309	0.615	0.735	0.951	0.927	1.021	0.759	35.19
64)	T	o-Xylene	0.799	1.226	1.467	1.879	1.826	2.064	1.544	30.71
65)	T	Styrene	0.739	1.125	1.322	1.651	1.607	1.824	1.378	29.06
66)	P	Bromoform	0.265	0.268	0.298	0.272	0.293	0.271	0.278	5.02
67)	T	Isopropylbenze...	0.842	1.365	1.640	2.265	2.105	2.488	1.784	34.67
68)	S	4-Bromofluorob...	0.593	0.622	0.591	0.651	0.591	0.649	0.616	4.66
69)	T	1,1,1,2-Tetra...	0.385	0.438	0.485	0.425	0.488	0.402	0.437	9.72
70)	I	d4-1,4-Dichloroben...	-----ISTD-----							
71)	P	1,1,2,2-Tetra...	0.819	0.794	1.139	0.884	1.275	0.961	0.979	19.49
72)	T	1,2,3-Trichlor...	0.318	0.263	0.374	0.276	0.384	0.309	0.320	15.49
73)	T	n-Propylbenzene	1.617	2.457	3.385	4.140	4.691	4.833	3.521	36.49
74)	T	Bromobenzene	1.053	1.260	1.646	1.620	1.931	1.796	1.551	21.40
75)	T	o-Chlorotoluene	1.307	1.835	2.382	2.638	2.924	2.945	2.339	27.84
76)	T	p-Chlorotoluene	1.323	1.857	2.409	2.742	3.116	3.118	2.428	29.68
77)	T	1,2,4-Trimethyl...	1.371	1.950	2.625	2.917	3.345	3.313	2.587	30.42
78)	T	tert-Butylbenzene	1.329	1.826	2.275	2.654	2.783	2.860	2.288	26.52
79)	T	Pentachloroethane	0.444	0.410	0.375	0.271	0.377	0.265	0.357	20.53
80)	T	1,3,5-Trimethyl...	1.389	1.978	2.654	2.997	3.449	3.348	2.636	30.76
81)	T	sec-Butylbenzene	1.529	2.263	3.043	3.812	3.924	4.345	3.153	34.43
82)	T	p-Isopropyltol...	1.361	1.984	2.572	3.139	3.282	3.621	2.660	32.31
83)	T	1,3-Dichlorobe...	1.038	1.314	1.583	1.693	1.813	1.887	1.555	20.78
84)	T	1,4-Dichlorobe...	1.043	1.340	1.621	1.755	1.837	1.907	1.584	20.96
85)	T	1,2-Dichlorobe...	1.037	1.295	1.550	1.667	1.687	1.889	1.521	20.18
86)	T	n-Butylbenzene	1.259	1.760	2.289	2.827	2.786	3.158	2.347	30.81
87)	T	Hexachloroethane	0.305	0.301	0.321	0.297	0.292	0.307	0.304	3.30
88)	T	1,2-Dibromo-3...	0.197	0.171	0.212	0.263	0.201	0.279	0.221	18.93
89)	T	1,2,4-Trichlor...	0.591	0.621	0.689	0.941	0.650	0.988	0.747	23.08
90)	T	Hexachlorobuta...	0.212	0.213	0.245	0.300	0.289	0.402	0.277	25.91
91)	T	Naphthalene	1.151	1.475	2.013	3.779	1.921	4.380	2.453	53.46
92)	T	1,2,3-Trichlor...	0.475	0.484	0.580	0.963	0.560	1.108	0.695	38.98

(#= Out of Range)

Compound List Report GCMS K

Method Path : C:\msdchem\1\METHODS\
 Method File : K_VOW_EBMW.M
 Title : VOCs; Method 8260/624 Aqueous; EnCon #1
 Last Update : Thu Mar 22 12:33:47 2012
 Response Via : Initial Calibration

Total Cpnds : 92

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	Pentafluorobenzene	168	3.126	1.000	A	2	A	L
2	T	Dichlorodifluoromethane	85	1.128	0.361	Q	2	A	B
3	P	Chloromethane	50	1.238	0.396	Q	1	A	B
4	C	Vinyl chloride	62	1.296	0.415	Q	1	A	B
5	T	Bromomethane	94	1.469	0.470	Q	1	A	B
6	T	Chloroethane	64	1.521	0.487	Q	1	A	B
7	T	Trichlorofluoromethane	101	1.647	0.527	A	2	A	B
8	T	Ethyl ether	59	1.799	0.575	A	2	A	B
9	T	Acrolein	56	1.888	0.604	Q	1	A	B
10	T	Acetone	43	1.967	0.629	Q	1	A	B
11	CM	1,1-Dichloroethene	96	1.925	0.616	A	2	A	B
12	T	Iodomethane	142	2.025	0.648	L	2	A	B
13	T	Carbon disulfide	76	2.056	0.658	Q	0	A	B
14	T	Allyl chloride	76	2.114	0.676	A	3	A	B
15	T	Methylene chloride	84	2.187	0.700	L	2	A	B
16	T	trans-1,2-Dichloroethene	96	2.318	0.742	A	1	A	B
17	T	cis-1,2-Dichloroethene	96	2.869	0.918	A	2	A	B
18	T	Methyl-t-butylether (MTBE)	73	2.303	0.737	Q	1	A	B
19	T	n-Hexane	57	2.428	0.777	Q	2	A	B
20	T	Acrylonitrile	53	2.329	0.745	Q	1	A	B
21	T	Vinyl acetate	43	2.554	0.817	Q	1	A	B
22	P	1,1-Dichloroethane	63	2.549	0.815	Q	1	A	B
23	T	2,2-Dichloropropane	77	2.853	0.913	A	1	A	B
24	T	2-Butanone (MEK)	43	2.869	0.918	L	1	A	B
25	T	Propionitrile	54	2.926	0.936	Q	1	A	B
26	T	Methyl acrylate	55	2.911	0.931	Q	1	A	B
27	T	Methacrylonitrile	41	3.000	0.960	A	1	A	B
28	T	Bromochloromethane	130	3.010	0.963	A	2	A	B
29	T	Tetrahydrofuran (THF)	71	3.026	0.968	A	1	A	B
30	C	Chloroform	83	3.042	0.973	Q	1	A	B
31	S	Dibromofluoromethane	111	3.136	1.003	A	2	A	B
32	T	1,1,1-Trichloroethane	97	3.136	1.003	Q	2	A	B
33	T	Butyl chloride	56	3.189	1.020	Q	1	A	B
34	T	Carbon tetrachloride	119	3.225	1.032	A	2	A	B
35	T	1,1-Dichloropropene	75	3.225	1.032	Q	2	A	B
36	I	1,4-Difluorobenzene	114	3.566	1.000	A	0	A	L
37	T	1,2-Dichloroethane	62	3.383	0.949	Q	1	A	B
38	M	Benzene	78	3.356	0.941	Q	0	A	B
39	T	n-Heptane	43	3.451	0.968	Q	2	A	B
40	M	Trichloroethene	130	3.734	1.047	A	2	A	B
41	T	Methyl methacrylate	69	3.923	1.100	L	2	A	B
42	C	1,2-Dichloropropane	63	3.886	1.090	A	1	A	B
43	T	Bromodichloromethane	83	4.064	1.140	A	1	A	B
44	T	Dibromomethane	174	3.975	1.115	A	1	A	B
45	T	2-Nitropropane	43	4.227	1.185	Q	1	A	B
46	T	2-Chloroethyl vinyl ether	63	4.232	1.187	Q	2	A	B
47	T	cis-1,3-Dichloropropene	75	4.342	1.218	Q	1	A	B
48	T	trans-1,3-Dichloropropene	75	4.714	1.322	Q	1	A	B
49	T	4-Methyl-2-pentanone (MIBK)	43	4.426	1.241	Q	3	A	B
50	CM	Toluene	91	4.547	1.275	Q	1	A	B
51	T	1,1,2-Trichloroethane	97	4.851	1.360	A	1	A	B
52	S	d8-Toluene	98	4.505	1.263	A	1	A	B
53	T	1,4-Dichloro-2-butene	53	6.591	1.848	Q	2	A	B

54	I	d5-Chlorobenzene	117	5.532	1.000	A	1	A	L
55	T	Ethyl methacrylate	69	4.735	0.856	Q	2	A	B
56	T	Tetrachloroethene	164	4.924	0.890	A	1	A	B
57	T	2-Hexanone	43	4.997	0.903	Q	2	A	B
58	T	1,3-Dichloropropane	76	4.966	0.898	Q	1	A	B
59	T	Chlorodibromomethane	129	5.134	0.928	A	1	A	B
60	T	1,2-Dibromoethane (EDB)	107	5.218	0.943	Q	2	A	B
61	MP	Chlorobenzene	112	5.553	1.004	Q	1	A	B
62	C	Ethylbenzene	106	5.616	1.015	Q	1	A	B
63	T	m&p-Xylene	106	5.700	1.030	Q	1	A	B
64	T	o-Xylene	91	6.004	1.085	Q	1	A	B
65	T	Styrene	104	6.020	1.088	Q	1	A	B
66	P	Bromoform	173	6.198	1.120	A	2	A	B
67	T	Isopropylbenzene (Cumene)	105	6.277	1.135	Q	1	A	B
68	S	4-Bromofluorobenzene	95	6.424	1.161	A	1	A	B
69	T	1,1,1,2-Tetrachloroethane	131	5.616	1.015	A	2	A	B
70	I	d4-1,4-Dichlorobenzene	152	7.336	1.000	A	3	A	L
71	P	1,1,2,2-Tetrachloroethane	83	6.555	0.894	Q	2	A	B
72	T	1,2,3-Trichloropropane	110	6.591	0.898	Q	0	A	B
73	T	n-Propylbenzene	91	6.597	0.899	Q	1	A	B
74	T	Bromobenzene	77	6.544	0.892	Q	2	A	B
75	T	o-Chlorotoluene	91	6.686	0.911	Q	1	A	B
76	T	p-Chlorotoluene	91	6.770	0.923	Q	1	A	B
77	T	1,2,4-Trimethylbenzene	105	6.733	0.918	Q	2	A	B
78	T	tert-Butylbenzene	119	6.990	0.953	Q	2	A	B
79	T	Pentachloroethane	167	7.037	0.959	Q	0	A	B
80	T	1,3,5-Trimethylbenzene	105	7.037	0.959	Q	1	A	B
81	T	sec-Butylbenzene	105	7.168	0.977	Q	2	A	B
82	T	p-Isopropyltoluene	119	7.283	0.993	Q	2	A	B
83	T	1,3-Dichlorobenzene	146	7.283	0.993	Q	2	A	B
84	T	1,4-Dichlorobenzene	146	7.357	1.003	Q	2	A	B
85	T	1,2-Dichlorobenzene	146	7.661	1.044	Q	2	A	B
86	T	n-Butylbenzene	91	7.614	1.038	Q	2	A	B
87	T	Hexachloroethane	201	7.850	1.070	A	2	A	B
88	T	1,2-Dibromo-3-chloropropane	157	8.316	1.134	Q	2	A	B
89	T	1,2,4-Trichlorobenzene	180	8.977	1.224	L	2	A	B
90	T	Hexachlorobutadiene	225	9.092	1.239	L	2	A	B
91	T	Naphthalene	128	9.181	1.252	Q	0	A	B
92	T	1,2,3-Trichlorobenzene	180	9.381	1.279	Q	2	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin

#Qual = number of qualifiers

A/H = Area or Height

ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

7 Evaluate Continuing Calibration Report

Data Path : D:\DATA\2012\1203\120320\
 Data File : K50975.D
 Acq On : 20 Mar 2012 9:42 am
 Operator : PAM
 Sample : VSTD050 50uL #14820,14821/50mL
 Misc : 5.0mLs Purged, ISTD #14873
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 21 08:33:06 2012
 Quant Method : C:\msdchem\1\METHODS\K_VOW_EBMW.M
 Quant Title : VOCs; Method 8260/624 Aqueous; EnCon #1
 QLast Update : Mon Mar 19 15:49:18 2012
 Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 25% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 I	Pentafluorobenzene	50.000	50.000	0.0	91	0.00
2 T	Dichlorodifluoromethane	50.000	61.952	-23.9	89	0.00
3 P	Chloromethane	50.000	58.371	-16.7	80	0.00
4 C	Vinyl chloride	50.000	54.173	-8.3	82	0.00
5 T	Bromomethane	50.000	60.720	-21.4	100	0.01
6 T	Chloroethane	50.000	43.984	12.0	73	0.02
7 T	Trichlorofluoromethane	50.000	50.963	-1.9	88	0.01
8 T	Ethyl ether	50.000	46.115	7.8	88	0.00
9 T	Acrolein	200.000	355.005	-77.5#	99	0.00
10 T	Acetone	50.000	36.709	26.6#	80	0.00
11 CM	1,1-Dichloroethene	50.000	56.766	-13.5	94	0.00
12 T	Iodomethane	50.000	32.593	34.8#	88	0.00
13 T	Carbon disulfide	50.000	50.081	-0.2	91	0.00
14 T	Allyl chloride	50.000	48.183	3.6	79	0.00
15 T	Methylene chloride	50.000	45.335	9.3	83	0.00
16 T	trans-1,2-Dichloroethene	50.000	56.085	-12.2	97	0.00
17 T	cis-1,2-Dichloroethene	50.000	51.389	-2.8	92	0.00
18 T	Methyl-t-butylether (MTBE)	50.000	51.183	-2.4	94	0.00
19 T	n-Hexane	50.000	47.769	4.5	76	0.00
20 T	Acrylonitrile	250.000	188.425	24.6	80	0.00
21 T	Vinyl acetate	50.000	44.438	11.1	76	0.00
22 P	1,1-Dichloroethane	50.000	55.179	-10.4	93	0.00
23 T	2,2-Dichloropropane	50.000	54.939	-9.9	93	0.00
24 T	2-Butanone (MEK)	50.000	34.867	30.3#	79	0.00
25 T	Propionitrile	50.000	33.577	32.8#	67	0.00
26 T	Methyl acrylate	50.000	47.898	4.2	84	0.00
27 T	Methacrylonitrile	50.000	42.099	15.8	79	0.00
28 T	Bromochloromethane	50.000	46.087	7.8	85	0.00
29 T	Tetrahydrofuran (THF)	50.000	39.779	20.4	94	0.00
30 C	Chloroform	50.000	56.169	-12.3	95	0.00
31 S	Dibromofluoromethane	50.000	48.702	2.6	88	0.00
32 T	1,1,1-Trichloroethane	50.000	58.849	-17.7	98	0.00
33 T	Butyl chloride	50.000	55.927	-11.9	91	0.00
34 T	Carbon tetrachloride	50.000	58.538	-17.1	95	0.00
35 T	1,1-Dichloropropene	50.000	57.988	-16.0	96	0.00
36 I	1,4-Difluorobenzene	50.000	50.000	0.0	93	0.00
37 T	1,2-Dichloroethane	50.000	48.065	3.9	93	0.00
38 M	Benzene	50.000	59.452	-18.9	97	0.00
39 T	n-Heptane	50.000	37.048	25.9#	66	0.00
40 M	Trichloroethene	50.000	53.045	-6.1	93	0.00
41 T	Methyl methacrylate	50.000	39.401	21.2	89	0.00
42 C	1,2-Dichloropropane	50.000	52.314	-4.6	92	0.00
43 T	Bromodichloromethane	50.000	50.236	-0.5	91	0.00
44 T	Dibromomethane	50.000	40.460	19.1	94	0.00
45 T	2-Nitropropane	50.000	31.003	38.0#	85	0.01
46 T	2-Chloroethyl vinyl ether	50.000	24.771	50.5#	78	0.00
47 T	cis-1,3-Dichloropropene	50.000	43.820	12.4	98	0.00

Evaluate Continuing Calibration Report

Data Path : D:\DATA\2012\1203\120320\
 Data File : K50975.D
 Acq On : 20 Mar 2012 9:42 am
 Operator : PAM
 Sample : VSTD050 50uL #14820,14821/50mL
 Misc : 5.0mLs Purged, ISTD #14873
 ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 21 08:33:06 2012
 Quant Method : C:\msdchem\1\METHODS\K_VOW_EBMW.M
 Quant Title : VOCs; Method 8260/624 Aqueous; EnCon #1
 QLast Update : Mon Mar 19 15:49:18 2012
 Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 25% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
48 T	trans-1,3-Dichloropropene	50.000	42.722	14.6	95	0.00
49 T	4-Methyl-2-pentanone (MIBK)	50.000	30.747	38.5#	72	0.00
50 CM	Toluene	50.000	51.433	-2.9	89	0.00
51 T	1,1,2-Trichloroethane	50.000	49.448	1.1	91	0.00
52 S	d8-Toluene	50.000	45.585	8.8	86	0.00
53 T	1,4-Dichloro-2-butene	50.000	36.867	26.3#	71	0.00
54 I	d5-Chlorobenzene	50.000	50.000	0.0	90	0.00
55 T	Ethyl methacrylate	50.000	43.592	12.8	81	0.00
56 T	Tetrachloroethene	50.000	55.977	-12.0	97	0.00
57 T	2-Hexanone	50.000	40.567	18.9	79	0.00
58 T	1,3-Dichloropropane	50.000	56.268	-12.5	97	0.00
59 T	Chlorodibromomethane	50.000	54.425	-8.8	93	0.00
60 T	1,2-Dibromoethane (EDB)	50.000	40.804	18.4	96	0.00
61 MP	Chlorobenzene	50.000	56.288	-12.6	96	0.00
62 C	Ethylbenzene	50.000	59.036	-18.1	98	0.00
63 T	m&p-Xylene	100.000	113.828	-13.8	91	0.00
64 T	o-Xylene	50.000	56.085	-12.2	89	0.00
65 T	Styrene	50.000	56.841	-13.7	92	0.00
66 P	Bromoform	50.000	44.506	11.0	78	0.00
67 T	Isopropylbenzene (Cumene)	50.000	59.184	-18.4	93	0.00
68 S	4-Bromofluorobenzene	50.000	51.562	-3.1	88	0.00
69 T	1,1,1,2-Tetrachloroethane	50.000	50.234	-0.5	83	0.00
70 I	d4-1,4-Dichlorobenzene	50.000	50.000	0.0	89	0.00
71 P	1,1,2,2-Tetrachloroethane	50.000	45.123	9.8	87	0.00
72 T	1,2,3-Trichloropropane	50.000	43.461	13.1	83	0.00
73 T	n-Propylbenzene	50.000	60.134	-20.3	92	0.00
74 T	Bromobenzene	50.000	49.764	0.5	89	0.00
75 T	o-Chlorotoluene	50.000	53.353	-6.7	86	0.00
76 T	p-Chlorotoluene	50.000	56.219	-12.4	92	0.00
77 T	1,2,4-Trimethylbenzene	50.000	54.806	-9.6	90	0.00
78 T	tert-Butylbenzene	50.000	56.648	-13.3	90	0.00
79 T	Pentachloroethane	50.000	43.546	12.9	76	0.00
80 T	1,3,5-Trimethylbenzene	50.000	53.861	-7.7	87	0.00
81 T	sec-Butylbenzene	50.000	55.488	-11.0	86	0.00
82 T	p-Isopropyltoluene	50.000	55.896	-11.8	88	0.00
83 T	1,3-Dichlorobenzene	50.000	54.867	-9.7	86	0.00
84 T	1,4-Dichlorobenzene	50.000	51.845	-3.7	85	0.00
85 T	1,2-Dichlorobenzene	50.000	52.049	-4.1	86	0.00
86 T	n-Butylbenzene	50.000	52.035	-4.1	83	0.00
87 T	Hexachloroethane	50.000	53.738	-7.5	85	0.00
88 T	1,2-Dibromo-3-chloropropane	50.000	52.708	-5.4	91	0.00
89 T	1,2,4-Trichlorobenzene	50.000	44.638	10.7	63	0.00
90 T	Hexachlorobutadiene	50.000	41.152	17.7	63	0.00
91 T	Naphthalene	50.000	40.402	19.2	61	0.00
92 T	1,2,3-Trichlorobenzene	50.000	39.842	20.3	55	0.00

Evaluate Continuing Calibration Report

Data Path : D:\DATA\2012\1203\120320\
Data File : K50975.D
Acq On : 20 Mar 2012 9:42 am
Operator : PAM
Sample : VSTD050 50uL #14820,14821/50mL
Misc : 5.0mLs Purged, ISTD #14873
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 21 08:33:06 2012
Quant Method : C:\msdchem\1\METHODS\K_VOW_EBMW.M
Quant Title : VOCs; Method 8260/624 Aqueous; EnCon #1
QLast Update : Mon Mar 19 15:49:18 2012
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 200%

Compound	Amount	Calc.	%Dev	Area	% Dev (min)
(#) = Out of Range				SPCC's out = 0	CCC's out = 0

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FIRST Contract: MWHARZ
 Lab Code: FEL Case No.: BLACKW SAS No.: SDG No.:
 Lab File ID (Standard): K50975.D Date Analyzed: 3/20/2012
 Instrument ID: GCMS K Time Analyzed: 9:42
 GC Column: ZB-624 ID: 0.32 (mm) Heated Purge (Y/N): N

	IS1 AREA #		IS2 AREA #		IS3 AREA #	
	RT #		RT #		RT #	
12 HOUR STD	818937	3.14	1557563	3.58	1253225	5.53
UPPER LIMIT	1637874	3.64	3115126	4.08	2506450	6.03
LOWER LIMIT	409469	2.64	778782	3.08	626613	5.03
EPA SAMPLE NO.						
01 ICVS050	861994	3.13	1456650	3.58	1252627	5.53
02 G138-22MS	1230126	3.12	1765721	3.57	1536676	5.53
03 ICVS050	861134	3.13	1536669	3.58	1260252	5.53
04 G138-22MSD	1102988	3.13	1746702	3.57	1513856	5.53
05 VBLK01	1046483	3.13	1686349	3.57	1463591	5.53
06 G138-22	1054685	3.13	1719762	3.57	1451742	5.53
07 TB01-22	1076924	3.13	1742171	3.57	1451005	5.53
08 FB01-22	1075398	3.12	1741608	3.57	1435126	5.53
09 FB02-22	1074994	3.13	1787071	3.57	1531608	5.53
10 G126-22	1082834	3.12	1700300	3.57	1451891	5.53
11 G117-22	1072801	3.13	1653900	3.57	1449586	5.53
12 G118S-22	1086121	3.13	1696149	3.57	1455028	5.53
13 G127-922	1175945	3.13	1894728	3.57	1603401	5.53

IS1 = Pentafluorobenzene
 IS2 = 1,4-Difluorobenzene
 IS3 = d5-Chlorobenzene
 IS4 = d4-1,4-Dichlorobenzene

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.

* Values outside of contract required QC limits

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FIRST Contract: MWHARZ
 Lab Code: FEL Case No.: BLACKW SAS No.: SDG No.:
 Lab File ID (Standard): K50975.D Date Analyzed: 3/20/2012
 Instrument ID: GCMS K Time Analyzed: 9:42
 GC Column: ZB-624 ID: 0.32 (mm) Heated Purge (Y/N): Y

		IS4									
		AREA #	RT #	AREA #	RT #	AREA #	RT #				
12 HOUR STD		699349	7.34								
UPPER LIMIT		1398698	6.84								
LOWER LIMIT		349675	7.84								

EPA SAMPLE
NO.

01	ICVS050	703973	7.34
02	G138-22MS	710042	7.34
03	ICVS050	710486	7.34
04	G138-22MSD	770206	7.34
05	VBLK01	678070	7.34
06	G138-22	654530	7.34
07	TB01-22	684285	7.34
08	FB01-22	666042	7.34
09	FB02-22	690390	7.34
10	G126-22	636932	7.34
11	G117-22	630312	7.34
12	G118S-22	626890	7.34
13	G127-922	732977	7.34

IS1 = Pentafluorobenzene
 IS2 = 1,4-Difluorobenzene
 IS3 = d5-Chlorobenzene
 IS4 = d4-1,4-Dichlorobenzene

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.

* Values outside of contract required QC limits

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FIRST Contract: MWHARZ
 Lab Code: FEL Case No.: BLACKW SAS No.: SDG No.:
 Lab File ID (Standard): K51010.D Date Analyzed: 3/22/2012
 Instrument ID: GCMS K Time Analyzed: 11:14
 GC Column: ZB-624 ID: 0.32 (mm) Heated Purge (Y/N): N

	IS1 AREA #		IS2 AREA #		IS3 AREA #	
	RT #		RT #		RT #	
12 HOUR STD	738771	3.13	1204813	3.57	1061267	5.53
UPPER LIMIT	1477542	3.63	2409626	4.07	2122534	6.03
LOWER LIMIT	369386	2.63	602407	3.07	530634	5.03
EPA SAMPLE NO.						
01 ICVS050	563269	3.13	1123657	3.58	911816	5.53
02 ICVS050	562820	3.13	1130418	3.58	928881	5.53
03 VBLK02	718816	3.13	1222203	3.57	1072005	5.53
04 G127-22	534594	3.14	1057922	3.58	871409	5.53

IS1 = Pentafluorobenzene
 IS2 = 1,4-Difluorobenzene
 IS3 = d5-Chlorobenzene
 IS4 = d4-1,4-Dichlorobenzene

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.

* Values outside of contract required QC limits

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FIRST Contract: MWHARZ
 Lab Code: FEL Case No.: BLACKW SAS No.: SDG No.:
 Lab File ID (Standard): K51010.D Date Analyzed: 3/22/2012
 Instrument ID: GCMS K Time Analyzed: 11:14
 GC Column: ZB-624 ID: 0.32 (mm) Heated Purge (Y/N): Y

IS4		AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD		544182	7.34				
UPPER LIMIT		1088364	6.84				
LOWER LIMIT		272091	7.84				
EPA SAMPLE NO.							
01	ICVS050	531734	7.34				
02	ICVS050	543376	7.34				
03	VBLK02	511926	7.34				
04	G127-22	501315	7.34				

IS1 = Pentafluorobenzene
 IS2 = 1,4-Difluorobenzene
 IS3 = d5-Chlorobenzene
 IS4 = d4-1,4-Dichlorobenzene

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.

* Values outside of contract required QC limits



CHAIN OF CUSTODY RECORD

Page 1 of 1 pgs

First Environmental Laboratories
1600 Shore Road, Suite D
Naperville, Illinois 60563
Phone: (630) 778-1200 • Fax: (630) 778-1233
E-mail: firstinfo@firstenv.com
IEPA Certification #100292

Company Name: MWH
Street Address: 175 W. JACKSON BLVD, SUITE 1900
City: CHICAGO State: IL Zip: 60604
Phone: (312) 831-3000 Fax: (312) 831-3999 e-mail: JUSTIN.E.FINGERL@MWHGLOBAL.COM
Send Report To: JUSTIN FINGERL Via: Fax e-mail
Sampled By: JUSTIN FINGERL, TED BOBAK, CHRIS SWAN

Analyses

Project I.D.: BLACKWELL GROUNDWATER		VOLs										
Date/Time Taken	Sample Description	Matrix									Comments	Lab I.D.
3/14/12 1030	BW-GW-TB01-2Z	W	X									12-1176-001
3/14/12 1045	BW-GW-FB01-2Z	W	X									002
3/14/12 1214	BW-GW-G138-2Z	W	X									003
3/14/12 1424	BW-GW-G126-2Z	W	X									004
3/14/12 1542	BW-GW-G117-2Z	W	X									005
3/15/12 0755	BW-GW-G118S-2Z	W	X									006
3/15/12 0911	BW-GW-G127-2Z	W	X									007
3/15/12 0912	BW-GW-G127-9Z	W	X									008
3/15/12 0940	BW-GW-FB02-2Z	W	X									009

FOR LAB USE ONLY:

Cooler Temperature: 0.1-6°C Yes No °C

Received within 6 hrs of collection: _____

Ice Present: Yes No Sample Refrigerated: Yes No

Refrigerator Temperature: _____ °C

5035 Vials Frozen: Yes No

Freezer Temperature: _____ °C

Containers Received Preserved: Yes NoNeed to meet: IL.TACO IN.RISC

Notes and Special Instructions: _____

Relinquished By: J.E. Date/Time 3/15/12 1030 Received By: Ryan Gr Date/Time 3/15/12 1030
Relinquished By: _____ Date/Time _____ Received By: _____ Date/Time _____

APPENDIX B

DATA QUALITY EVALUATION REPORT

**DATA QUALITY EVALUATION REPORT
FOR LONG-TERM GROUNDWATER MONITORING (ROUND 14)**

**BLACKWELL FOREST PRESERVE LANDFILL SITE
DUPAGE COUNTY, ILLINOIS**



MWH Americas, Inc.
175 West Jackson Boulevard, Suite 1900
Chicago, Illinois 60604

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ACRONYMS AND ABBREVIATIONS

%RSD	Relative percent standard deviations
HCl	Hydrochloric acid
µg/L	Micrograms per liter
MS/MSD	Matrix spike/matrix spike duplicate
QC	Quality control
RPD	Relative percent difference
RRF	Relative response factor
TCL	Target compound list
USEPA	United States Environmental Protection Agency
VOA	Volatile organic analysis
VOCs	Volatile organic compounds

1.0 INTRODUCTION

The following text is based on the data review of groundwater samples collected at Blackwell Forest Preserve Landfill Site on March 14 and 15, 2012.

Five water samples were analyzed by First Environmental Laboratories, Inc. of Naperville, Illinois, for the following parameters:

- Target compound list (TCL) Volatile Organic Compounds (VOCs) by SW-846 method 5030B/8260B

The following quality control (QC) samples were collected during sampling on March 14 and 15, 2011:

- One field duplicate for sample BW-GW-G127-22 (BW-GW-G127-922)
- One trip blank (BW-GW-TB01-22)
- Two field blanks collected on March 14 and 15, 2012 (BW-GW-FB01-22 and BW-GW-FB02-22, respectively)

2.0 VOLATILE ORGANIC COMPOUNDS DATA REVIEW

2.1 Holding Times

Holding time reflects the length of time after sample collection that a sample remains representative of environmental conditions. The length of time between sample collection and analysis was evaluated. All holding times met requirements.

2.2 Gas Chromatography/Mass Spectrometry Instrument Performance Check

Instrument performance was checked daily, prior to analysis, and all ion abundance requirements were met.

2.3 Initial Calibration

Initial calibration was performed using six calibration standards at concentrations of 5, 10, 20, 50, 100, and 200 micrograms per liter ($\mu\text{g/L}$). Relative percent standard deviations (%RSD) were less than or equal to 30% for all standard compounds and less than or equal to 40% for all non-standard and polar compounds with the exception of ethyl ether (44.90%) on March 19, 2012. The *United States Environmental Protection Agency (USEPA) Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA 1999) requires the average relative response factor (RRF) to be greater than 0.05. The initial calibration met acceptance criteria with the exception of ethyl ether (0.017) on March 22, 2012. Neither of the outlying cases mentioned above affect the quality of the analytical results for the reported results.

2.4 Continuing Calibration

All volatile organic compound sample analyses were performed within a seven hour analysis period. Therefore, continuing calibration was not required because the analysis period did not exceed 12 hours per the continuing calibration standards.

2.5 Internal Standards

The retention times were within ± 30 seconds of the internal standards for all environmental and QC samples. The extracted ion current profile areas were within -50 to +150% of the internal standards for all environmental and QC samples.

2.6 Retention Time Windows

The retention time windows were within the daily retention time windows established by the daily routine calibration standard for every environmental and QC sample.

2.7 System Monitoring Compounds

All system monitoring compound recoveries were within laboratory QC limits.

2.8 Blanks

Trip blank BW-GW-TB01-22 accompanied coolers containing samples requiring VOC analysis and was analyzed to verify that samples were not contaminated by the sample container or other samples during transport to and/or during storage at the laboratory. The trip blank accompanied empty bottle sets to the site and consisted of a set of two volatile organic analysis (VOA) vials that had been filled by the laboratory with reagent-grade, organic-free water and preserved with 1:1 hydrochloric acid (HCl). The trip blank remained unopened and with the samples during sample collection and shipping. No VOCs were detected in trip blank BW-GW-TB01-22.

Field blanks BW-GW-FB01-22 and BW-GW-FB02-22 were collected on March 14 and 15, 2012, respectively. No VOCs were detected in the field blanks.

2.9 Field Duplicates

A field duplicate sample was collected and analyzed to evaluate sampling and analytical representativeness and precision. One field duplicate was collected for analysis. The parent and field duplicate samples collected at monitoring well G127 were non-detect for VOCs with the exception of cis-1,2-dichloroethene (7.6 µg/L [parent]; 6.3 µg/L [duplicate]). A comparison of actual sample results and relative percent differences (RPDs) indicates good agreement (<40) between parent samples and their respective duplicates.

	Units	BW-GW-G127-21	BW-GW-G127-921	RPD
		Parent Sample	Duplicate Sample	(%)
cis-1,2-Dichloroethene	µg/L	7.6	6.3	18.7%

2.10 Matrix Spike/Matrix Spike Duplicates

Matrix spike/matrix spike duplicates (MS/MSD) analysis was conducted on sample BW-GW-G138-22. 1,1-Dichloroethene, benzene, chlorobenzene, toluene, and trichloroethene were spiked into the sample at concentrations of 50 µg/L. The percent recoveries and RPDs were compared to laboratory QC limits. The MS/MSDs were acceptable.

3.0 CONCLUSIONS

Groundwater data collected during the Round 14 groundwater-monitoring event was evaluated using the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA 1999) and the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA 1994). Based on the review of the VOC data, the data are acceptable, and no qualifications are required.

4.0 REFERENCES

USEPA. 1999. *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review*. EPA 540/R-99/013.

USEPA. 1994. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*. EPA 540/R-94/008.

CRS/JEF
\\uschi4s02\\Warrenville\\jobs\\100\\7333 Blackwell\\4.0 Execution (Project Deliverables)\\4.3 Groundwater Monitoring\\4.3.3 GW Monitoring - FY2012\\March 2012 GWS Report\\Appendix B\\Round 14 Data Verification.doc

APPENDIX C

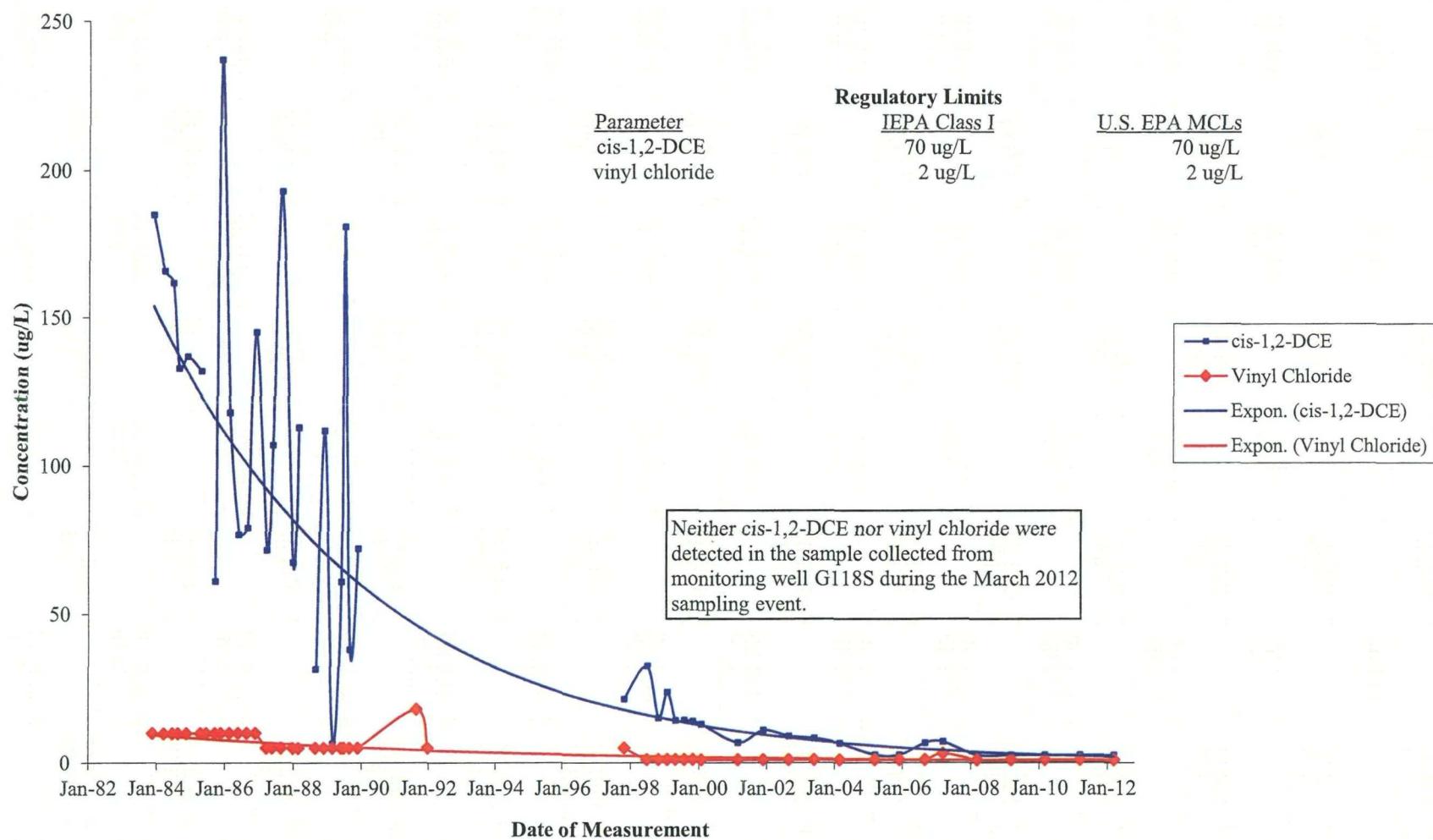
TREND LINE ANALYSIS

VOC Trend Analysis Drawings 1 and 2 Outliers and Modified Trend Line Presentation

Data points on the Trend Analysis Drawings are considered outliers when the concentrations are considerably lower than prior or subsequent dates, and when the concentrations fell below the calculated trend line. An example of this type of outlier is a non-detect, presented as one-half the detection limit, which is preceded and followed by a detection of relatively high concentration. An evaluation of the data set that produced Drawings 1 and 2 indicates that the majority of outliers fit this category.

For presentational purposes the trend lines contained in the following Trend Analysis Drawings were produced using an exponential curve format. The resulting exponential trend lines accurately represent the decline of contaminant concentrations from December 1983 to March 2012.

Drawing 1
VOC Trend Analysis - G118S



Drawing 2
VOC Trend Analysis - G127

